

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION**

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**R5-2007-0056  
NPDES NO. CA0078051  
WASTE DISCHARGE REQUIREMENTS FOR THE  
CITY OF MT. SHASTA WASTEWATER TREATMENT PLANT AND  
U.S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE  
SISKIYOU COUNTY**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

**Table 1. Discharger Information**

<b>Discharger</b>	City of Mt. Shasta, Wastewater Treatment Plant
<b>Name of Facility</b>	Wastewater Treatment Plant, City of Mt. Shasta
<b>Facility Address</b>	2500 Grant Road
	Mt Shasta, CA 96067
	Siskiyou County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.	

The discharge by the Owner/Operator from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Location**

<b>Point</b>	<b>Description</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Receiving Water</b>
EFF-001	Treated effluent	<b>41°16'35.18" N</b>	<b>122°19'6.98"W</b>	Sacramento River
EFF-002 <sup>1</sup>	Treated effluent	<b>41°16'59.16" N</b>	<b>122°19'7.80"W</b>	Mt. Shasta Resort Golf Course
EFF-003 <sup>1</sup>	Treated effluent	<b>41°17'8.34" N</b>	<b>122°16'24.65"W</b>	Leachfield

<sup>1</sup> Not a NPDES Discharge

**Table 3. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	<b>21 June 2007</b>
This Order shall become effective on:	<b>10 August 2007</b>
This Order shall expire on:	<b>1 June 2012</b>
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	<b><u>180 days prior to the Order expiration date</u></b>

IT IS HEREBY ORDERED, that Order No. 5-01-218 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 21 June 2007.

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PAMELA C. CREEDON, Executive Officer

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## I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

**Table 4. Facility Information**

<b>Discharger</b>	City of Mt. Shasta Wastewater Treatment Plant
<b>Name of Facility</b>	Wastewater Treatment Plant, City of Mt. Shasta
<b>Facility Address</b>	2500 Grant Road
	Mt Shasta, CA 96067
	Siskiyou County
<b>Facility Contact, Title, and Phone</b>	Nathan Woods, Treatment Plant Operator (530) 926-7535 Rodney Bryan, Public Works Director, (530) 926-7510
<b>Mailing Address</b>	City of Mt. Shasta, 305 North Mt. Shasta Boulevard, Mt. Shasta, CA 96067
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Facility Design Flow</b>	0.80 million gallons per day (mgd) (WWTP), 0.70 mgd (Leachfield)

## II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Regional Water Board), finds:

**A. Background.** The City of Mt. Shasta Wastewater Treatment Plant (hereinafter Discharger) is currently discharging pursuant to Order No. 5-01-218 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078051. The Discharger submitted a Report of Waste Discharge, dated 9 November 2006, and applied for a NPDES permit renewal to discharge up to 0.80 mgd of treated wastewater to the Sacramento River and the Mt Shasta Resort Golf Course and 0.70 mgd treated wastewater to the Highway 89 Leachfield from the Mt. Shasta wastewater treatment plant, hereinafter Facility. The application was deemed complete on 27 November 2006. An interim effluent discharge flow limitation of 0.70 mgd will be in place until additional piping between ponds is installed in the fall of 2007.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

**B. Facility Description.** The Discharger owns and operates the municipal wastewater treatment plant. The treatment system consists of headworks (Parshall flume, bar screen, comminutor and grit chamber), four oxidation/stabilization ponds, ballast lagoon dosing basin, dissolved air flotation system, intermittent backwash filter, chlorine contact chamber, dechlorination system and discharge line. Wastewater is discharged to one of the following: Discharge EFF-001 on the Sacramento River (a water of the United States), EFF-003, a leachfield adjacent to Highway 89 on land owned by the U.S. Department of Agriculture, Forest Service (hereinafter Forest Service) or EFF-002, the Mt. Shasta Resort Golf Course. Discharge EFF-001 is within the Box Canyon Hydrologic Sub Area of the Upper Sacramento River Hydrologic Unit (525.22). Attachment B provides a map of the area around the Facility. Attachment C provides a

flow schematic of the Facility. Attachment D provides a map of the area around the leachfield.

- C. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).
- D. Background and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (CFR)<sup>1</sup> require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. This Order includes technology-based effluent limitations based on advanced secondary treatment or equivalent requirements that meet both the technology-based secondary treatment standards for POTWs and protect the beneficial uses of the receiving waters. The Regional Water Board has considered the factors listed in CWC §13241 in establishing these requirements. The discharge authorized by this Order must meet minimum federal technology-based requirements. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet (Attachment F).
- G. Water Quality-based Effluent Limitations.** Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The Regional Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements. The rationale for these requirements, which consist of secondary and advanced secondary treatment or equivalent requirements, is discussed in the Fact Sheet.

Section 122.44(d)(1)(i) mandates that permits include effluent limitations for all

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<sup>1</sup> All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

**H. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (hereinafter Basin Plan) that designates beneficial uses, establishes water-quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-1 The beneficial uses of the Upper Sacramento River are as follows: municipal and domestic supply; agricultural supply, including stock watering; industrial service supply; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; cold freshwater habitat; cold spawning, reproduction, and /or early development; and wildlife habitat.

In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to the Upper Sacramento River are as follows:

**Table 5. Basin Plan Beneficial Uses**

<b>Discharge Point</b>	<b>Receiving Water Name</b>	<b>Beneficial Use(s)</b>
EFF-001	<u>Upper Sacramento River</u>	<u>Existing:</u> Municipal and domestic supply (MUN), Agricultural supply, including stock watering (AGR), Water contact recreation, including canoeing and rafting (REC-1), Non-contact water recreation, including aesthetic enjoyment (REC-2), Cold freshwater habitat (COLD), Cold spawning, reproduction, and /or early development (SPWN), and Wildlife habitat (WILD);
EFF-002 and EFF-003	<u>Underlying Groundwater</u>	<u>Potential:</u> Municipal and domestic water supply (MUN), Industrial service supply (IND), Industrial process supply (PRO), and Agricultural supply (AGR).

Requirements of this Order implement the Basin Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

**K. Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment et al. v. State Water Resources Control Board*, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., Whole Effluent Toxicity (WET) Control Policy. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria.

For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or May 18, 2010) to establish and comply with CTR criterion-based effluent limitations. Where a compliance schedule for a final effluent limitation that exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter. Where allowed by the Basin Plan, compliance schedules and interim effluent limitations or discharge specifications may also be granted to allow time to implement a new or revised water quality objective. This Order includes compliance schedules and interim effluent limitations and/or discharge specifications. A detailed discussion of the basis for the compliance schedule(s) and interim effluent limitation(s) is included in the Fact Sheet.

**L. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes. (40 C.F.R. § 131.21; 65 Fed. Reg. 24641 (April 27, 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards

submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000 may be used for CWA purposes, whether or not approved by USEPA.

**M. Stringency of Requirements for Individual Pollutants.** This Order contains technology-based, water quality-based and performance-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD<sub>5</sub>, TSS, Removal Efficiency and pH. The water quality-based effluent limitations consist of restrictions on turbidity, residual chlorine, ammonia, 4,4'-DDT, copper, zinc and pathogens. The performance based effluent limitation is for electrical conductivity. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations more stringent than the minimum, federal technology-based requirements that are necessary to meet water quality standards. These limitations are more stringent than required by the CWA. Specifically, this Order includes effluent limitations for BOD, TSS, turbidity and pathogens that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

Water quality-based effluent limitations have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations are based on the CTR-SIP, which was approved by USEPA on May 1, 2001. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR section 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

**N. Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is consistent with the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in

the Fact Sheet the permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16.

- O. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.
- P. Monitoring and Reporting.** Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. This Monitoring and Reporting Program is provided in Attachment E.
- Q. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42. The Regional Water Board has also included in this Order special provisions applicable to the Discharger. A rationale for the special provisions contained in this Order is provided in the attached Fact Sheet.
- R. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B, IV.C, V.B, and VI.C of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- S. Notification of Interested Parties.** The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- T. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

### **III. DISCHARGE PROHIBITIONS**

- A. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G and I.H (Attachment C).
- C. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
- D. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.
- E. The discharge of wastewater to the Sacramento River during the recreation season (15 June through 14 September) is prohibited.
- F. The discharge of wastes classified as hazardous as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq.(hereafter Chapter 15) or designated as defined in Section 13173 of the California Water Code, is prohibited.

## IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

### A. Effluent Limitations – Discharge Point EFF-001

#### 1. Final Effluent Limitations – Discharge Point EFF-001

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point EFF-001, with compliance measured immediately downstream of the de-chlorination chamber as described in the attached MRP:

**Table 6A. Effluent Limitations (16 November through 14 April)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	Standard Units				6.0	9.0
Settleable Solids	mL/L-Hr.	0.1		0.2		
EC	µmhos/cm	700				
BOD	mg/L	30	45	60		
	lbs/day	200	300	400		
TSS	mg/L	30	45	60		
	lbs/day	200	300	400		
Ammonia	mg/L	3.68		29.57 <sup>2</sup>		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper (total recoverable)	ug/L	3.94		7.90		
Zinc (total recoverable)	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		

<sup>1</sup> Four-day average

<sup>2</sup> One-hour average

<sup>3</sup> Weekly median

<sup>4</sup> Daily maximum

<sup>5</sup> Daily average

**Table 6B. Effluent Limitations (15 April through 14 June and 16 September through 15 November)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	Standard Units				6.0	9.0
Settleable Solids	mL/L-Hr.	0.1		0.2		
EC	µmhos/cm	700				
BOD	mg/L	10	15	30		
	lbs/day	67	100	200		
TSS	mg/L	10	15	30		
	lbs/day	67	100	200		
Ammonia	mg/L	3.68		29.57 <sup>2</sup>		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper	ug/L	3.94		7.90		
Zinc	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		
Turbidity	NTU		5.0	10.0		

<sup>1</sup> Four-day average

<sup>2</sup> One-hour average

<sup>3</sup> Weekly median

<sup>4</sup> Daily maximum

<sup>5</sup> Daily average

- b. **Percent Removal:** The average monthly percent removal of BOD 5-day 20°C and total suspended solids for all discharges to the Sacramento River at EFF-001 shall not be less than 85 percent.
- c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste for all discharges to the Sacramento river at EFF-001 shall be no less than:
  - i. 70%, minimum for any one bioassay; and
  - ii. 90%, median for any three consecutive bioassays.
- d. **Temperature.** The maximum temperature of the discharge shall not exceed the natural receiving water temperature by more than 20°F for all discharges to the Sacramento River at EFF-001.
- e. **Average Daily Discharge Flow.** The Average Daily Discharge Flow for discharges to the Sacramento River at EFF-001 shall not exceed 0.80 million gallons per day (mgd).

## 2. Interim Effluent Limitations

- a. During the period beginning 10 August 2007 and ending on 18 May 2010, the Discharger shall maintain compliance with the following limitations at EFF-001 for ammonia and 4,4'-DDT, with compliance measured immediately downstream of the dechlorination chamber as described in the attached MRP. These interim effluent limitations shall apply in lieu of the corresponding final effluent limitations specified for the same parameters during the time period indicated in this provision. The interim limit for effluent flow of 0.70 mgd shall apply until inter-pond piping is completed which is scheduled for the fall of 2007.

**Table 7. Interim Effluent Limitations (For all EFF- 001 discharges)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd			0.70		
Ammonia	mg/L	18.8		58.5		
4,4'-DDT	ug/L	0.11		0.34		

## B. Land Discharge Specifications – Discharge EFF-003 to Highway 89 Leachfield

1. The daily average discharge flow shall not exceed 0.70 mgd.
2. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the treatment ponds is prohibited.
3. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas (*or property owned by the Discharger*).
4. Beginning 10 August 2007, the Discharger shall maintain compliance with the following limitations at EFF-003, the Highway 89 Leachfield, with compliance measured at the discharge from the chlorine contact chamber as described in the attached MRP.

**Table 8. Land Discharge Specifications**

Parameter	Units	Discharge Specifications		
		Average Monthly	Maximum Daily	Average Annual
Settleable Solids	mL/L-Hr.	0.1		0.2
BOD	mg/L	30	45	60
TSS	mg/L	30	45	60
Total Coliform Organisms	MPN/100 mL	23 <sup>1</sup>		240 <sup>2</sup>
Discharge Flow	million gallons/day			0.70 <sup>3</sup>

<sup>1</sup> Weekly median

<sup>2</sup> Daily maximum

<sup>3</sup> Daily average

**C. Reclamation Specifications – Discharge to EFF- 002, Mt. Shasta Resort Golf Course**

1. The discharge shall be distributed uniformly on adequate acreage in compliance with the Discharge Specifications. All tail water must be returned to the spray fields or treatment facilities.
2. Hydraulic loading of wastewater shall be at reasonable agronomic rates designed to minimize the percolation of process wastewater below the root zone (*i.e.*, deep percolation).
3. Public contact with effluent shall be precluded through such means as fences, signs, and other acceptable alternatives.
4. Areas irrigated with effluent shall be managed to prevent breeding of mosquitoes. More specifically:
  - a. All applied irrigation water must infiltrate completely within 24 hours.
  - b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation.
  - c. Low-pressure and un-pressurized pipelines and ditches, which are accessible to mosquitoes, shall not be used to store reclaimed water.
5. Discharges to spray irrigation fields shall be managed to minimize erosion. Runoff from the disposal area must be captured and returned to the treatment facilities or spray fields.

6. There shall be no standing water in the golf course 24 hours after wastewater is applied.
7. The Discharger may not discharge effluent to the golf course 24 hours before precipitation, during periods of precipitation, and for at least 24 hours after cessation of precipitation, or when soils are saturated.
8. A 50-foot buffer zone shall be maintained between any watercourse and the wetted area produced during irrigation used for effluent disposal.
9. A 100-foot buffer zone shall be maintained between any spring, domestic well or irrigation well and the wetted area produced during irrigation used for effluent disposal.
10. A 50-foot buffer zone shall be maintained between irrigation areas and all property boundaries.
11. Beginning 10 August 2007, the Discharger shall maintain compliance with the following limitations at EFF-002, the Mt Shasta Resort Golf Course with compliance measured at the discharge from the dechlorination chamber as described in the attached MRP.

**Table 9. Reclamation Discharge Specifications**

Parameter	Units	Discharge Specifications		
		Average Monthly	Maximum Daily	Average Annual
pH	Standard Units		6.0 - 9.0 <sup>1</sup>	
Total Coliform Organisms	MPN/100 mL	2.2 <sup>2</sup>	23	
Turbidity	NTU	5 <sup>3</sup>	10	
Average Dry Weather Flow	Million gallons/day		0.80 <sup>4</sup>	
Acute Toxicity, 96-hour static bioassay using Rainbow Trout	% Survival		70-90 <sup>5</sup>	
%BOD and TSS removal	%	85		
BOD	mg/L	10	15	30
	lbs/day			
TSS	mg/L	10	15	30
	lbs/day			

<sup>1</sup> Instantaneous Maximum and Minimum

<sup>2</sup> Monthly Median

<sup>3</sup> Weekly Average

<sup>4</sup> Daily Average

<sup>5</sup> The minimum survival for any one bioassay shall be 70%, the median for any three or more consecutive bioassays shall be 90% Daily Average

## V. RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in the Sacramento River:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than ten percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
  - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass ;
  - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
  - c. The dissolved oxygen concentration to be reduced below 7.0
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 or raised above 8.5, nor changed by more than 0.5 units. A one-month averaging period may be applied when calculating the pH change of 0.5 units.
9. **Pesticides:**
  - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
  - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer, prescribed in *Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> Edition*, or other equivalent methods approved by the Executive Officer.
- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR §131.12.).
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable.
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15/specified in Table 64444-A (Organic Chemicals) of Section 64444 of Title 22 of the California Code of Regulations.
- g. Thiobencarb to be present in excess of 1.0 µg/L.

**10. Radioactivity:**

- a. Radionuclides to be present in concentrations that are harmful/deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the maximum contaminant levels specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations.

**11. Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

**12. Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

**13. Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

**14. Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses/or to domestic or municipal water supplies.

**15. Temperature.** The natural temperature to be increased by more than 5°F.

**16. Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

**17. Turbidity.** The turbidity to increase as follows:

- a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
- b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
- c. More than 10 NTU where natural turbidity is between 50 and 100 NTUs.
- d. More than 10 percent where natural turbidity is greater than 100 NTUs.

When wastewater is treated to a tertiary level (including coagulation) or equivalent, a one-month averaging period may be used when determining compliance with this Receiving Surface Water Limitation for turbidity.

**B. Groundwater Limitations**

1. Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality. Any increase in Total Dissolved Solids (TDS) or Electrical Conductivity (EC) concentrations within the monitoring points, when compared to background, shall not exceed the increase typically caused by the percolation discharge of domestic wastewater, and shall not violate water quality objectives, impact beneficial uses, or cause pollution or nuisance. For purposes of this limitation, the monitoring points are the Tillman well east of the Highway 89 (MW-1) leachfield, the Needland well south of the Highway 89 leachfield (MW-2) and Monitoring Well MW3 on the southwest boundary of the Highway 89 leachfield.
2. Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTP to contain waste constituents in concentrations in excess of natural background quality or that listed below, whichever is greater:
  - a. Total coliform organisms median of 2.2 MPN/100 mL over any seven-day period.
  - b. Chemical constituents in concentrations that adversely affect beneficial uses, including:
    - i. Constituent concentrations listed below:

Parameter	Units	Limitation
Total Dissolved Solids <sup>1</sup>	mg/L	500
Nitrate + Nitrite (as N)	mg/L	10.0

<sup>1</sup> A cumulative constituent comprised of dissolved matter consisting mainly of inorganic salts, small amounts of organic matter, and dissolved gases (e.g., ammonia, bicarbonate alkalinity, boron, calcium, chloride, copper, iron, magnesium, manganese, nitrate, phosphorus, potassium, sodium, silica, sulfate, total alkalinity).

## VI. PROVISIONS

### A. Standard Provisions

1. The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. The Discharger shall comply with the following provisions:
  - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, Division 3, Chapter 26.
  - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
    - i. violation of any term or condition contained in this Order;
    - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;
    - iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
    - iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under Section 405(d) of the Clean Water Act, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 Code of Federal Regulations (CFR) 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Regional Water Board may review and revise this Order at any time upon application of any affected person or the Regional Water Board's own motion.

- c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Regional Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
  - i. contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
  - ii. controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under Section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. The discharge of any radiological, chemical or biological warfare agent or high-level, radiological waste is prohibited.
- i. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- j. Safeguard to electric power failure:

- i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
- ii. Upon written request by the Regional Water Board the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past five years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Regional Water Board.
- iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Regional Water Board not approve the existing safeguards, the Discharger shall, within ninety days of having been advised in writing by the Regional Water Board that the existing safeguards are inadequate, provide to the Regional Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Regional Water Board, become a condition of this Order.
- k. The Discharger, upon written request of the Regional Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under Regional Water Board Standard Provision VI.A.2.m.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Regional Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- l. A publicly owned treatment works (POTW) whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last three years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in four years, the Discharger shall notify the Regional Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Regional Water Board may extend the time for submitting the report.
- m. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
- n. Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Regional Water Board and USEPA.
- o. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- p. Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- q. All monitoring and analysis instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy.
- r. The Discharger shall file with the Regional Water Board technical reports on self-monitoring performed according to the detailed specifications contained in the Monitoring and Reporting Program attached to this Order.
- s. The results of all monitoring required by this Order shall be reported to the Regional Water Board, and shall be submitted in such a format as to allow direct

comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

- t. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.
- u. For POTWs, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (CWC section 1211).
- v. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Regional Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within five days, unless the Regional Water Board waives confirmation. The written notification shall include the information required by Attachment D, Section V.E.1 [40 CFR section 122.41(l)(6)(i)].

## **B. Monitoring and Reporting Program (MRP) Requirements**

The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

## **C. Special Provisions**

### **1. Reopener Provisions**

- a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- b. Conditions that necessitate a major modification of a permit are described in 40 CFR section 122.62, including:
  - i. If new or amended applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.

- ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the interim mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Regional Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for <constituent(s)>. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

## 2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. **Mixing Zone/Dilution Study.** Section 1.4 of the SIP contains procedures for calculating effluent limitations. The calculation includes a dilution credit, D, which is a numerical value associated with the mixing zone that accounts for the receiving water entrained into the discharge. Dilution credits may be granted at the discretion of the Board in accordance with the provisions in Section 1.4.2. The minimum discharge from Box Canyon Dam approximately one mile upstream of the discharge, is 40 cubic feet per second (CFS) or 25.9 million gallons per day (mgd). The actual discharge during the wet season when the Discharger is discharging at EFF-001 is far higher. The Regional Board has determined that a minimum 20/1 dilution exists at all times during effluent discharge to the Sacramento River, and that a dilution credit may be granted. No dilution credit will be granted for copper, zinc, ammonia or 4,4'-DDT, however, until the Discharger submits a mixing zone study which demonstrates that complete mixing occurs within an appropriate length of the receiving stream, and that there will be no effects on aquatic life. If a mixing zone study is submitted which adequately demonstrates the absence of negative effects on aquatic life, this permit may be reopened to include revised effluent limitations for copper, zinc, ammonia and 4,4'-DDT, based on the dilution credit. An interim dilution credit of 10:1 has been granted in this Permit for chronic toxicity. The Discharger is required to submit a mixing zone/dilution study within two years of the adoption of this Permit which documents that a 10:1 dilution exists at all times effluent is being discharged to the Sacramento River. If the Discharger fails to submit the report by the date specified, this Permit may be reopened and the dilution allowance for chronic toxicity removed. If the report indicates that less than 10:1 dilution

exists during some periods of discharge, then the Permit will be reopened and an appropriate dilution granted.

- d. **Groundwater Monitoring.** To determine compliance with Groundwater Limitations V.B., the groundwater monitoring network shall include one or more background monitoring wells and a sufficient number of designated monitoring wells downgradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. All monitoring wells shall comply with the appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 74-81 (December 1981), and any more stringent standards adopted by the Discharger or County pursuant to CWC section 13801.

### **3. Best Management Practices and Pollution Prevention (Not Applicable)**

### **4. Construction, Operation and Maintenance Specifications**

#### **a. Treatment Pond Operating Requirements.**

- i. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
- ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
- iii. Ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b) Weeds shall be minimized.
  - c) Dead algae, vegetation, and debris shall not accumulate on the water surface.
- iv. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).
- v. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the non-irrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

- vi. Prior to the onset of the rainy season of each year, available pond storage capacity shall at least equal the volume necessary to comply with Land Discharge Specification v.

## **5. Special Provisions for Municipal Facilities (POTWs Only)**

### **a. Sludge/Biosolids Discharge Specifications**

- i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, section 20005, et seq. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a regional water quality control board will satisfy these specifications.
- ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.
- iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations V.B. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate Groundwater Limitations V.B.
- iv. The use and disposal of biosolids shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503. If the State Water Board and the Regional Water Board are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

### **b. Biosolids Disposal Requirements**

- i. The Discharger shall comply with the Monitoring and Reporting Program for biosolids disposal contained in Attachment E.
- ii. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.

- iii. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

**c. Biosolids Storage Requirements**

- i. Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.
- ii. Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- iii. Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.
- iv. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate.

- d. **Collection System.** On May 2, 2006, the State Water Board adopted State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order 2006-0003 and any future revisions thereto. Order 2006-0003 requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the General WDR. By November 2, 2006, the Discharger is required by that Order, not incorporated by reference herein, to apply for coverage under State Water Board Order 2006-0003 for operation of its wastewater collection system.

Regardless of the coverage obtained under Order 2006-0003, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must properly operate and maintain its collection system [40 CFR section 122.41(e)], report any non-compliance [40 CFR section 122.41(l)(6) and (7)], and mitigate any discharge from the collection system in violation of this Order [40 CFR section 122.41(d)].

- e. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters including chlorine residual be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed **within six months of adoption** of this permit. For systems installed following permit adoption, the notification system shall be installed simultaneously.

## 6. Other Special Provisions

- a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to the DHS reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3, (Title 22), or equivalent.
- b. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Regional Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Water Board and a statement. The statement shall comply with the signatory and certification requirements in the Federal Standard Provisions (Attachment D, Section V.B.) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

## 7. Compliance Schedules

### Compliance Schedules for Final Effluent Limitations

**By May 18, 2010**, the Discharger shall comply with the final effluent limitations for copper, zinc, 4,4'-DDT, and ammonia. On 13 December 2006 the Discharger submitted a compliance schedule justification. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit semi-annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)

## VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

- A. **BOD and TSS Effluent Limitations.** Compliance with the final effluent limitations for BOD and TSS required in section IV.1.a shall be ascertained by 24-hour composite samples. The Discharger presently takes grab samples for compliance with BOD and TSS effluent limitations. The Discharger is required to install 24-hour composite sampling equipment within two years of the adoption of this Permit. Compliance with effluent limitations, section IV.1. b. for percent removal shall be calculated using the arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples

collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.

- B. Average Daily Discharge Flow Effluent Limitations.** The Average Daily Discharge Flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the Average Daily Discharge Flow effluent limitations will be measured at times when groundwater is at or near normal and runoff is not occurring.
- C. Total Coliform Organisms Effluent Limitations (Section IV.A.1.).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last seven days for which analyses have been completed. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of 2.2 per 100 milliliters, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period.
- D. Total Residual Chlorine Effluent Limitations.** Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. The Discharger is required to install continuous chlorine monitoring equipment within two years of the adoption of this Permit. A positive residual dechlorination agent in the effluent indicates that chlorine is not present in the discharge, which demonstrates compliance with the effluent limitations. This type of monitoring can also be used to prove that some chlorine residual exceedances are false positives. Continuous monitoring data showing either a positive dechlorination agent residual or a chlorine residual at or below the prescribed limit are sufficient to show compliance with the total residual chlorine effluent limitations, as long as the instruments are maintained and calibrated in accordance with the manufacturer's recommendations.

Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation. If the Discharger conducts continuous monitoring and the Discharger can demonstrate, through data collected from a back-up monitoring system, that a chlorine spike recorded by the continuous monitor was not actually due to chlorine, then any excursion resulting from the recorded spike will not be considered an exceedance, but rather reported as a false positive.

## ATTACHMENT A – DEFINITIONS

**Arithmetic Mean ( $\mu$ )**, also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean =  $\mu = \Sigma x / n$       where:  $\Sigma x$  is the sum of the measured ambient water concentrations, and  $n$  is the number of samples.

**Average Monthly Effluent Limitation (AMEL):** the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**Average Weekly Effluent Limitation (AWEL):** the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

**Best Practicable Treatment or Control (BPTC):** BPTC is a requirement of State Water Resources Control Board Resolution 68-16 – “Statement of Policy with Respect to Maintaining High Quality of Waters in California” (referred to as the “Antidegradation Policy”). BPTC is the treatment or control of a discharge necessary to assure that, *“(a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.”* Pollution is defined in CWC Section 13050(I). In general, an exceedance of a water quality objective in the Basin Plan constitutes “pollution”.

**Bioaccumulative** pollutants are those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

**Carcinogenic** pollutants are substances that are known to cause cancer in living organisms.

**Coefficient of Variation (CV)** is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

**Daily Discharge:** Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

**Detected, but Not Quantified (DNQ)** are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

**Dilution Credit** is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

**Effluent Concentration Allowance (ECA)** is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

**Enclosed Bays** means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

**Estimated Chemical Concentration** is the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

**Estuaries** means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

**Inland Surface Waters** are all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

**Instantaneous Maximum Effluent Limitation:** the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

**Instantaneous Minimum Effluent Limitation:** the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

**Maximum Daily Effluent Limitation (MDEL)** means the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

**Median** is the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements ( $n$ ) is odd, then the median =  $X_{(n+1)/2}$ . If  $n$  is even, then the median =  $(X_{n/2} + X_{(n/2)+1})/2$  (i.e., the midpoint between the  $n/2$  and  $n/2+1$ ).

**Method Detection Limit (MDL)** is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

**Minimum Level (ML)** is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

**Mixing Zone** is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

**Not Detected (ND)** are those sample results less than the laboratory's MDL.

**Ocean Waters** are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

**Persistent** pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

**Pollutant Minimization Program (PMP)** means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent

bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

**Pollution Prevention** means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

**Reporting Level (RL)** is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

**Satellite Collection System** is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

**Source of Drinking Water** is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

**Standard Deviation ( $\sigma$ )** is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

$\mu$  is the arithmetic mean of the observed values; and

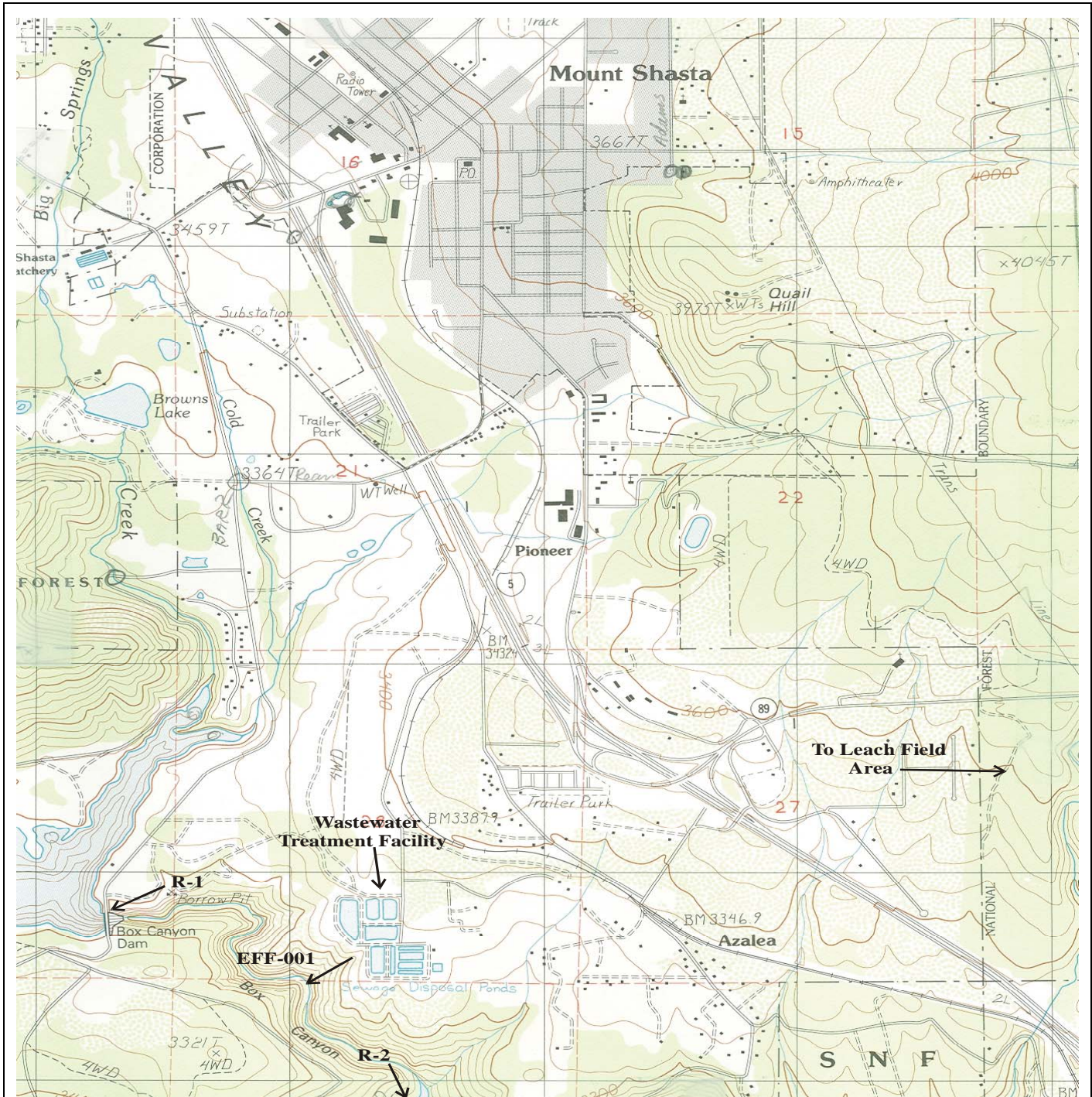
n is the number of samples.

**Toxicity Reduction Evaluation (TRE)** is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as

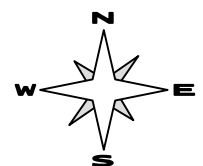
part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

## ATTACHMENT B – 1 MAP

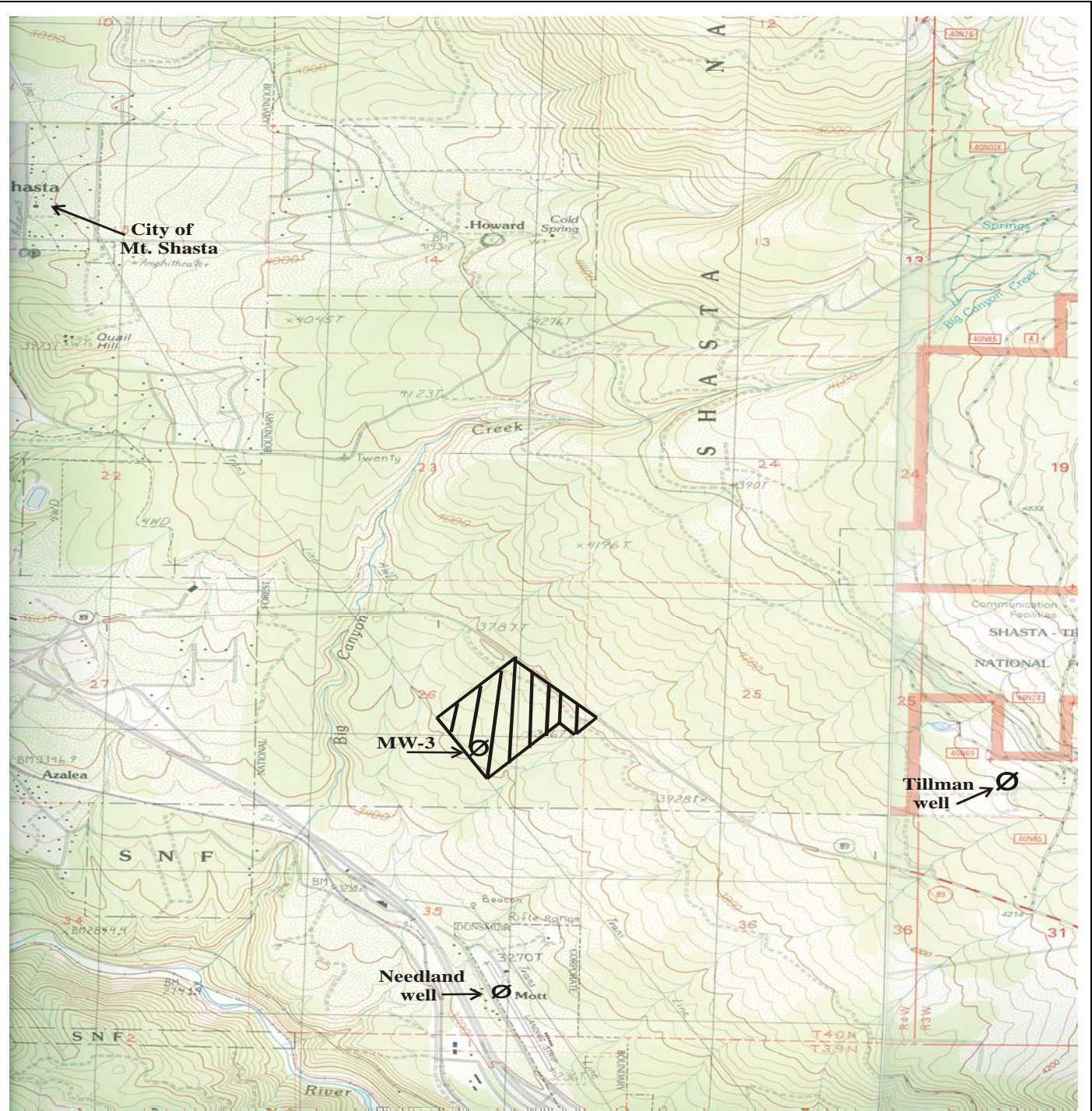


Drawing Reference:  
**QUAD SHEET NAME**  
U.S.G.S TOPOGRAPHIC MAP  
7.5 MINUTE QUADRANGLE  
*Photorevised 1973*  
1"=2,000'

**SITE LOCATION MAP - FACILITY**  
  
CITY OF MT. SHASTA  
WASTEWATER TREATMENT PLANT  
SISKIYOU COUNTY

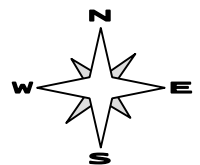


## ATTACHMENT B – 2 MAP

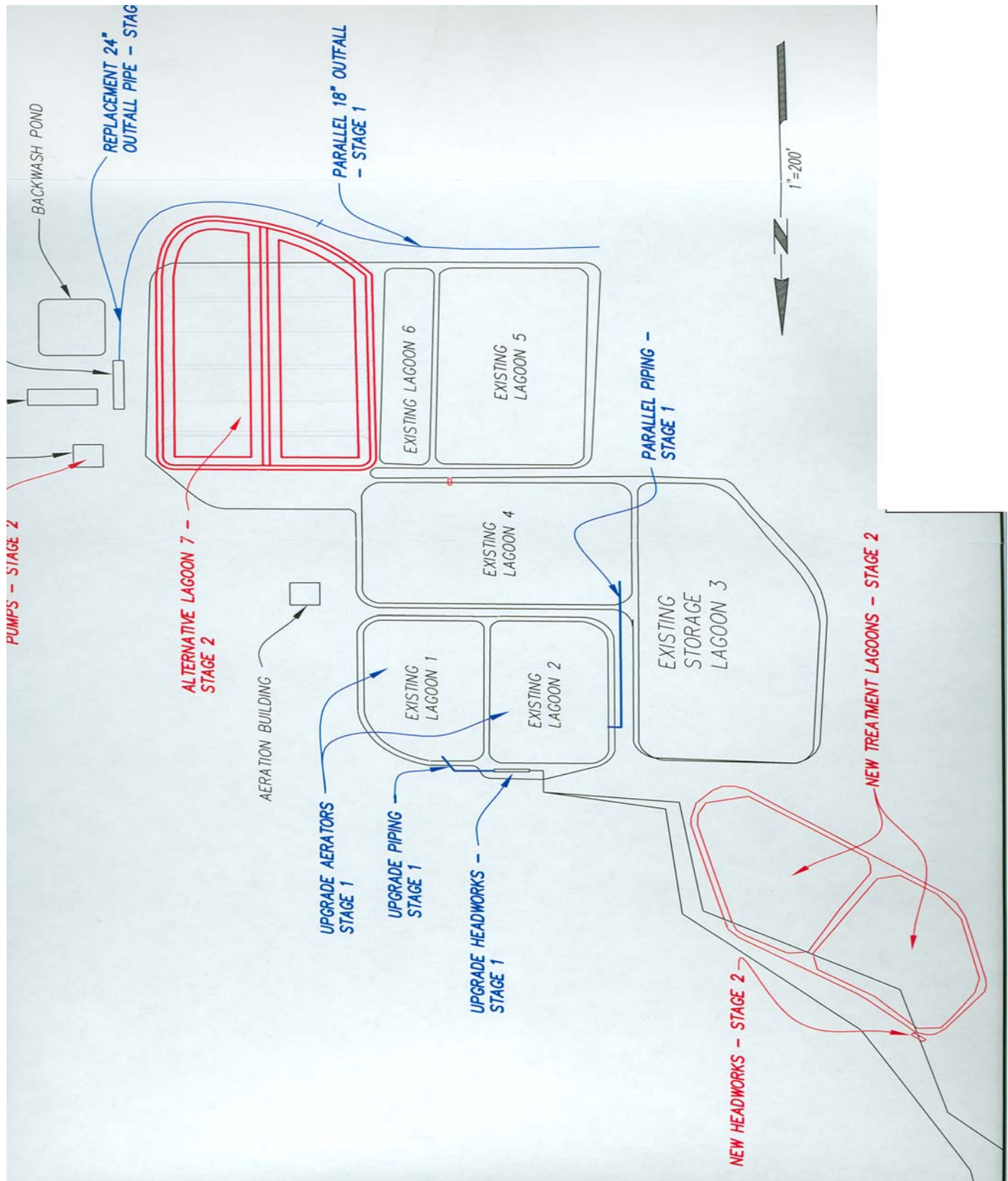


Drawing Reference:  
**QUAD SHEET NAME**  
U.S.G.S TOPOGRAPHIC MAP  
7.5 MINUTE QUADRANGLE  
*Photorevised 1973*  
1"=2,000'

**SITE LOCATION MAP – AREA WELLS**  
  
CITY OF MT. SHASTA  
WASTEWATER TREATMENT PLANT  
SISKIYOU COUNTY



## Attachment C – Flow Schematic



## **ATTACHMENT D –STANDARD PROVISIONS**

### **I. STANDARD PROVISIONS – PERMIT COMPLIANCE**

#### **A. Duty to Comply**

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 C.F.R. § 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 C.F.R. § 122.41(a)(1).)

#### **B. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 C.F.R. § 122.41(c).)

#### **C. Duty to Mitigate**

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 C.F.R. § 122.41(d).)

#### **D. Proper Operation and Maintenance**

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 C.F.R. § 122.41(e).)

#### **E. Property Rights**

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 C.F.R. § 122.5(c).)

## **F. Inspection and Entry**

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 C.F.R. § 122.41(i); Wat. Code, § 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 C.F.R. § 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 C.F.R. § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 C.F.R. § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 C.F.R. § 122.41(i)(4).)

## **G. Bypass**

1. Definitions
  - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)
  - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 C.F.R. § 122.41(m)(1)(ii).)
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 C.F.R. § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 C.F.R. § 122.41(m)(4)(i)):
  - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 122.41(m)(4)(i)(A));
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 C.F.R. § 122.41(m)(4)(i)(B)); and
  - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)
5. Notice
  - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 C.F.R. § 122.41(m)(3)(i).)
  - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 C.F.R. § 122.41(m)(3)(ii).)

## **H. Upset**

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 C.F.R. § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No

determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 C.F.R. § 122.41(n)(2).).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 C.F.R. § 122.41(n)(3)):
  - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));
  - b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 122.41(n)(3)(ii));
  - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and
  - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 122.41(n)(3)(iv).)
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 C.F.R. § 122.41(n)(4).)

## **II. STANDARD PROVISIONS – PERMIT ACTION**

### **A. General**

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 C.F.R. § 122.41(f).)

### **B. Duty to Reapply**

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 C.F.R. § 122.41(b).)

### **C. Transfers**

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such

other requirements as may be necessary under the CWA and the Water Code. (40 C.F.R. § 122.41(l)(3); § 122.61.)

### **III. STANDARD PROVISIONS – MONITORING**

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)
- B.** Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 C.F.R. § 122.41(j)(4); § 122.44(i)(1)(iv).)

### **IV. STANDARD PROVISIONS – RECORDS**

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 C.F.R. § 122.41(j)(2).)

#### **B. Records of monitoring information shall include:**

- 1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
- 2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
- 3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));
- 4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
- 5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
- 6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

#### **C. Claims of confidentiality for the following information will be denied (40 C.F.R. § 122.7(b)):**

- 1. The name and address of any permit applicant or Discharger (40 C.F.R. § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

## **V. STANDARD PROVISIONS – REPORTING**

### **A. Duty to Provide Information**

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, § 13267.)

### **B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 C.F.R. § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 C.F.R. § 122.22(a)(3).)
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 C.F.R. § 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 C.F.R. § 122.22(b)(2)); and
  - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 C.F.R. § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 C.F.R. § 122.22(d).)

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 C.F.R. § 122.41(l)(4)(i).)
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 C.F.R. § 122.41(l)(4)(iii).)

### **D. Compliance Schedules**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 C.F.R. § 122.41(l)(5).)

## **E. Twenty Four- Hour Reporting**

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 C.F.R. § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)
  - b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

## **F. Planned Changes**

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R. § 122.41(l)(1)(iii).)

### **G. Anticipated Noncompliance**

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

### **H. Other Noncompliance**

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

### **I. Other Information**

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

## **VI. STANDARD PROVISIONS – ENFORCEMENT**

- A.** The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

## **VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**

### **A. Publicly-Owned Treatment Works (POTWs)**

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and
2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)
3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)**

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

### **I. GENERAL MONITORING PROVISIONS**

- A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.
- B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.
- C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.
- D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

## II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

**Table E-1. Monitoring Station Locations**

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
001	INF-001	Immediately upstream of influent Parshall Flume, 41°16'48.72" N, 122°18'53.08"W
001	EFF-001	Sampled at discharge from dechlorination chamber, actual discharge location is 0.66 miles downstream of Box Canyon Dam, 41°16'35.18" N, 122°19'6.98"W
002	EFF-002	Discharge from dechlorination chamber to Mt. Shasta Resort Golf Course, 41°16'59.16" N, 122°19'7.80"W
003	EFF-003	Discharge from chlorine contact chamber to Highway 89 Leachfield, 41°17'8.34" N, 122°16'24.65"W
R-1	R-1	Lake Siskiyou immediately upstream of discharge at Box Canyon Dam, 41°16'45.15" N, 122°19'40.65"W
R-2	R-2	Sacramento River 1.15 miles downstream of treatment plant Discharge EFF-001 opposite Ney Springs fishing access point, 41°16'17.84" N, 122°18'50.28"W
003	MW-1	Upgradient monitoring well, (Tillman Well) 41°16'42.0" N, 122°14'34.8"W
003	MW-2	Downgradient monitoring well (Needland Well) 41°15'52.5" N, 122°16'27.0"W
003	MW-3	Downgradient monitoring well (Highway 89 Leachfield Well) 41°16'48.7" N, 122°16'31.5"W
B-001	B-001	Biosolids Storage Area
SPL-001	SPL-001	Municipal water supply for City of Mt. Shasta taken at City Hall after sufficient purging or other appropriate location

## III. INFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location INF- 001

1. The Discharger shall monitor influent to the facility at INF-001 as follows:

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
BOD 5-day 20°C	mg/L	24-hr Composite <sup>1</sup>	weekly	
TSS	mg/L	24-hr Composite <sup>1</sup>	weekly	
Flow	mgd	Meter Reading	Continuous	

<sup>1</sup> 24-hour flow proportional composite

#### IV. EFFLUENT MONITORING REQUIREMENTS

##### A. Monitoring Location EFF- 001

1. The Discharger shall monitor treated wastewater treatment plant effluent at EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

**Table E-3. Effluent Monitoring (All Discharges to Sacramento River at 001)**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Total Residual Chlorine <sup>1</sup>	mg/L	Meter	Continuous	
Turbidity <sup>2</sup>	NTU	Meter	Daily	
BOD 5-day 20°C	mg/L	24-hr Composite	Weekly	
Total Suspended Solids	mg/L	24-hr Composite	Weekly	
Total Coliform Organisms	MPN/100 mL	Grab	Weekly	
Settleable Solids	mL/L	Grab	Weekly	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	Monthly	
Total Dissolved Solids	mg/L	Grab	Monthly	
4,4'-DDT	µg/L	Grab	Monthly	
Bis (2-ethylhexyl) Phthalate	µg/L	Grab	Monthly	
Copper	µg/L	Grab	Monthly	
Zinc	µg/L	Grab	Monthly	
Ammonia, Total (as N) <sup>3,4</sup>	mg/L	Grab	Quarterly	
Nitrate (as N) <sup>5</sup>	mg/L	Grab	Semiannually	
Nitrite (as N) <sup>5</sup>	mg/L	Grab	Semiannually	
Standard Minerals <sup>6</sup>	mg/L	Grab	1/year	
Priority Pollutants <sup>7,8</sup>	µg/L	Grab	1/year	

- 
- <sup>1</sup> Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.
  - <sup>2</sup> Only to be monitored during shoulder period discharges (15 April through 14 June and 16 September through 15 November)
  - <sup>3</sup> Concurrent with biotoxicity monitoring. Samples to be taken during periods of discharge to the Sacramento River in November, January and April and reported in December, February and May
  - <sup>4</sup> Report as total ammonia N.
  - <sup>5</sup> Samples to be taken in December and April and reported in January and May.
  - <sup>6</sup> Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance). Standard mineral samples should be taken in January and results reported in February.
  - <sup>7</sup> For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP. Priority Pollutants samples should be taken in January and results reported in February.
  - <sup>8</sup> Concurrent with receiving surface water sampling.

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

- A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:
1. Monitoring Frequency – the Discharger shall perform quarterly acute toxicity testing, concurrent with effluent ammonia sampling.
  2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location EFF-001.

**Using grab or composite samples.** The following is stated in the Acute Toxicity Testing Manual (Version 5), “8.1.2 The decision on whether to collect grab or composite samples is based on the requirements of the NPDES permit, the objectives of the test, and an understanding of the short and long-term operations and schedules of the discharger. If the effluent quality varies considerably with time, which can occur where holding times within the treatment facility are short, grab samples may seem preferable because of the ease of collection and the potential of observing peaks (spikes) in toxicity. However, the sampling duration of a grab sample is so short that full characterization of an effluent over a 24-h period would require a prohibitive number of separate samples and tests. Collection of a 24-h composite sample, however, may dilute toxicity spikes, and average the quality of the effluent over the sampling period.”

The manual states further that the advantages of grab samples are: 1. They are easy to collect; require a minimum of equipment and on-site time, and 2. Provide a measure of instantaneous toxicity. Toxicity spikes are not masked by dilution. The disadvantages are that samples are collected over a very short period of time and on a relatively infrequent basis. The chances of detecting a spike in toxicity would depend on the frequency of sampling, and the probability of missing spikes is high. The advantages of composite samples are: 1. A single effluent sample is collected over a 24-h period. 2. The sample is collected over a much longer period of time than grab samples and contains all toxicity spikes. While the disadvantages are: (1) Sampling equipment is more sophisticated and expensive, and must be placed on-site for at least 24 hrs; and (2) Toxicity spikes may not be detected because they are masked by dilution with less toxic wastes.

3. Test Species – Test species shall be Rainbow Trout (*Oncorhynchus Mykiss*)
4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

**B. Chronic Toxicity Testing.** The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. Monitoring Frequency – the Discharger shall perform annual three species chronic toxicity testing.
2. Sample Types – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. Laboratory water shall be used as the control.
3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. Test Species – Chronic toxicity testing measures sublethal (e.g. reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
  - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
  - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and

- The green alga, *Selenastrum capricornutum* (growth test).
5. **Methods** – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.
  6. **Reference Toxicant** – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
  7. **Dilutions** – The chronic toxicity testing shall be performed using 100% and 10% effluent and two laboratory water controls. (The Discharger has been granted a 10:1 dilution credit for chronic toxicity). If toxicity is found in the 10% effluent test, the Discharger must immediately retest, using the dilution series identified in Table E-5 below. The laboratory water control shall be used as the diluent as the receiving water exhibits some toxicity.
  8. **Test Failure** – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
    - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or
    - b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in <Special Provisions VI. 2.a.iii.>)

**Table E-4. Chronic Toxicity Testing Dilution Series**

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

**C. WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring

trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

**D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:
  - a. The results expressed in TUc, measured as 100/NOEC, and also measured as 100/LC<sub>50</sub>, 100/EC<sub>25</sub>, 100/IC<sub>25</sub>, and 100/IC<sub>50</sub>, as appropriate.
  - b. The statistical methods used to calculate endpoints;
  - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
  - d. The dates of sample collection and initiation of each toxicity test; and
  - e. The results compared to the numeric toxicity monitoring trigger of 10 TUc.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE. (Note: items a through c, above, are only required when testing is performed using the full dilution series.)

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.
4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes (If applicable):
  - a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
  - b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
  - c. Any information on deviations or problems encountered and how they were dealt with.

## VI. LAND DISCHARGE MONITORING REQUIREMENTS

### A. Monitoring Location EFF-003

1. The Discharger shall monitor treated wastewater treatment plant effluent discharged to the Highway 89 Leachfield at EFF- 003 as follows:

**Table E-5. Land Discharge Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Total Residual Chlorine	mg/L	Grab	Weekly	
BOD 5-day 20°C	mg/L	24-hr Composite	Weekly	
Total Suspended Solids	mg/L	24-hr Composite	Weekly	

## VII. RECLAMATION MONITORING REQUIREMENTS

### A. Monitoring Location EFF-002

1. The Discharger shall monitor recycled wastewater treatment plant effluent discharged to the Mt. Shasta Resort Golf Course at EFF- 002 as follows:

**Table E-6. Reclamation Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method and (Minimum Level, units), respectively
Flow	mgd	Meter	Continuous	
Total Residual Chlorine <sup>1</sup>	mg/L	Meter	Continuous	
Total Residual Chlorine, before dechlorination	mg/L	Grab	Weekly	
BOD 5-day 20°C	mg/L	24-hr Composite	Weekly	
Total Suspended Solids	mg/L	24-hr Composite	Weekly	
Total Coliform Organisms	MPN/100 mL	Grab	Weekly	
Turbidity	NTU	Meter	Daily <sup>2</sup>	

<sup>1</sup> Total chlorine residual must be monitored with a method sensitive to and accurate at the permitted level of 0.01 mg/L.

## VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

### A. Monitoring Location R-1

1. The Discharger shall monitor The Sacramento River upstream of discharge EFF-001 at R-1 as follows:

**Table E-7a. Receiving Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow <sup>1</sup>	CFS	Reading	Daily	
Temperature	°F (°C)	Grab	Weekly	
pH	Standard Units	Grab	Weekly	
Total Coliform Organisms	MPN	Grab	2x/Month	
Hardness as CaCO <sub>3</sub>	mg/L	Grab	Monthly	
Dissolved Oxygen	mg/L	Grab	Monthly	
Turbidity	NTU	Grab	Monthly	
Priority Pollutants	µg/L	Grab	1/Life of Permit	

<sup>1</sup> Flow to be measured at discharge from Box Canyon Dam on Lake Siskiyou.

### B. Monitoring Location R-2

1. The Discharger shall monitor The Sacramento River downstream of discharge EFF-001 at R-2 as follows:

**Table E-7b. Receiving Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Temperature	°F (°C)	Grab	Weekly	
pH	Standard Units	Grab	Weekly	
Total Coliform Organisms	MPN	Grab	2x/Month	
Dissolved Oxygen	mg/L	Grab	Monthly	
Turbidity	NTU	Grab	Monthly	

### C. Monitoring Locations MW-1, MW-2, and MW-3

1. The Discharger shall monitor The three groundwater monitoring wells associated with the Highway 89 Leachfield at MW-1, MW-2 and MW-3 as follows:

**Table E-7c. Groundwater Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Nitrate (as N) <sup>1</sup>	mg/L	Grab	Annually	
Electrical Conductivity @ 25°C <sup>1</sup>	µmhos/cm	Grab	Annually	
Total Dissolved Solids <sup>1</sup>	mg/L	Grab	Annually	
Standard Minerals <sup>1</sup>	mg/L	Grab	Annually	

<sup>1</sup> Samples for groundwater analysis should be taken in October and reported in November. Prior to sample collection the well should be adequately purged by pumping at least three well volumes and obtaining equilibrium pH and/or EC values for the pumped contents.

## IX. OTHER MONITORING REQUIREMENTS

### A. Biosolids

#### Monitoring Location B-001

1. A composite sample of sludge shall be collected when sludge is removed from the ponds for disposal in accordance with USEPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the metals listed in Title 22.
2. Sampling records shall be retained for a minimum of **five years**. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.
3. Upon removal of sludge, the Discharger shall submit characterization of sludge quality, including sludge percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). Suggested methods for analysis of sludge are provided in USEPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in USEPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

## B. Municipal Water Supply

### 1. Monitoring Location SPL-001

The Discharger shall monitor the Municipal Water Supply at SPL-001 as follows. A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples.

**Table E-8. Municipal Water Supply Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	Grab	1/year	
Electrical Conductivity @ 25°C	µmhos/cm	Grab	1/year	
Standard Minerals <sup>1</sup>	mg/L	Grab	1/year	

<sup>1</sup> Standard minerals shall include all major cations and anions and include verification that the analysis is complete (i.e., cation/anion balance).

## X. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986.
5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy ( $\pm$  a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
  - d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.
6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

## **B. Self Monitoring Reports (SMRs)**

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using

the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.
3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.
4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.
5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.
6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.
7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board  
Central Valley Region, Redding Office  
415 Knollcrest Drive, Suite #100  
Redding, CA 96022

8. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-9. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	10 August 2007	All	Submit with SMR
Hourly	10 August 2007	Hourly	Submit with SMR
Daily	10 August 2007	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with-SMR
Weekly	12 August 2007	Sunday through Saturday	Submit with SMR
Monthly	1 September 2007	1 <sup>st</sup> day of calendar month through last day of calendar month	Submit with SMR
Quarterly	1 October 2007	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	Submit as required in footnotes to Tables
Semiannually	1 January 2008	January 1 through June 30 July 1 through December 31	Submit as required in footnotes to Tables
Annually	1 January 2008	January 1 through December 31	Submit as required in footnotes to Tables

**C. Discharge Monitoring Reports (DMRs) (Not Applicable)**

**D. Other Reports**

- Progress Reports.** As specified in the compliance time schedules required in Special Provisions VI, progress reports shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

**Table E-10. Reporting Requirements for Special Provisions Progress Reports**

<b>Special Provision</b>	<b>Reporting Requirements</b>
Submit a Pollution Prevention Plan for ammonia and 4,4"-DDT in accordance with CCR Section 13263.3	12 months after the effective date of this Order. (10 August 2008)
Submit dilution credit/mixing zone study.	2 years after the effective date of this Order. (10 August 2009)
Implement Pollution Prevention Plan if required.	3 years after the effective date of this Order. (10 August 2010)
Achieve compliance with final effluent limitations.	18 May 2010.

2. **Annual Operations Report.** By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:
  - a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
  - b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
  - c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
  - d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
  - e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

## ATTACHMENT F – FACT SHEET

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## **ATTACHMENT F – FACT SHEET**

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

### **I. PERMIT INFORMATION**

The following table summarizes administrative information related to the facility.

**Table F-1. Facility Information**

<b>WDID</b>	5A470105001
<b>Discharger</b>	City of Mt. Shasta
<b>Name of Facility</b>	Wastewater Treatment Plant, City of Mt. Shasta
<b>Facility Address</b>	2500 Grant Road
	Mt. Shasta, CA 96067
	Siskiyou County
<b>Facility Contact, Title and Phone</b>	Nathan Woods, Treatment Plant Operator (530) 926-7535 Rodney Bryan, Public Works Director, (530) 926-7510
<b>Authorized Person to Sign and Submit Reports</b>	Rodney Bryan, Public Works Director (530) 926-7535
<b>Mailing Address</b>	City of Mt. Shasta, 305 North Mt. Shasta Boulevard, Mt. Shasta, CA 96067
<b>Billing Address</b>	City of Mt. Shasta, 305 North Mt. Shasta Boulevard, Mt. Shasta, CA 96067
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Major or Minor Facility</b>	Minor
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	B
<b>Pretreatment Program</b>	N
<b>Reclamation Requirements</b>	Producer
<b>Facility Permitted Flow</b>	0.80 million gallons per day (mgd) (WWTP), 0.70 mgd (Highway 89 Leachfield Note: Interim WWTP discharge flow limit of 0.70 mgd applies until installation of pond piping has been completed
<b>Facility Design Flow</b>	0.80 million gallons per day (mgd) (WWTP), 0.70 mgd (Highway 89 Leachfield
<b>Watershed</b>	Upper Sacramento Hydrologic Unit (525.00) Mount Shasta Hydrologic Area (525.20) Box Canyon Hydrologic Subarea (525.22)
<b>Receiving Water</b>	Upper Sacramento River
<b>Receiving Water Type</b>	Inland Surface Water

- A.** The City of Mt. Shasta (hereinafter Discharger) is the owner and operator of the City of Mt. Shasta Wastewater Treatment Plant (hereinafter Facility), a Publicly Owned Treatment Works (POTW).

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to the Sacramento River, a water of the United States, and is currently regulated by Order No. 5-01-218 which was adopted on 7 September 2001 and expired on 1 September 2006 The terms and conditions of the

current Order have been automatically continued and remain in effect until new Waste Discharge Requirements and NPDES permit are adopted pursuant to this Order.

- C. The Discharger filed a report of waste discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on 9 November 2006.

## **II. FACILITY DESCRIPTION**

The City of Mt. Shasta Wastewater Treatment Plant is located approximately 2 miles south of the City on the west side of I-5 adjacent to the Sacramento River immediately downstream of Box Canyon Dam. The plant is a publicly owned treatment works treating primarily domestic sewage. During the winter period, 15 November through 14 April, treated effluent is discharged to the Sacramento River at Discharge Point EFF-001. During the "shoulder periods" 15 April through 14 June and 15 September through 14 November, the Discharger may discharge treated effluent to discharge point EFF-001 provided that the more stringent effluent limitations for TSS, BOD, total coliform organisms, and turbidity can be met. Discharge to the Sacramento River during the summer recreation period, 15 June through 14 September, is prohibited. In addition to the NPDES discharges to the Sacramento River, the Discharger may at any time discharge treated effluent to the 35 acre subsurface leachfield area approximately 2.5 miles to the east of the plant south of Highway 89. The Discharger may also discharge reclaimed water to the Mt. Shasta Resort Golf Course. There are separate effluent limitations for each of these discharge options.

The Discharger provides sewerage service for the City of Mt. Shasta and serves a population of approximately 3,900. The existing WWTP design average daily flow capacity is 0.70 mgd. When the piping improvements in the pond system have been completed, the design capacity will increase to 0.80 mgd

### **A. Description of Wastewater and Biosolids Treatment or Controls**

The wastewater treatment system consists of headworks, (Parshall flume, bar screen, comminutor, and grit chamber), four oxidation/stabilization ponds, ballast lagoon, dosing basin, dissolved air flotation system, intermittent backwash sand filter, chlorine contact chamber and de-chlorination chamber.

### **B. Discharge Points and Receiving Waters**

1. The Facility is located in Section 28, T40N, R4W, MDB&M, as shown in Attachment B (Figure B-1), a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point EFF-001 to the Sacramento River, a water of the United States at a point Latitude 41°16'35.18" N, 122°19'6.98"W .

3. Treated municipal wastewater may also be discharged at Discharge point EFF-003 to the subsurface leachfield south of Highway 89 at Latitude 41°17'8.34" N, 122°16'24.65"W .
4. Treated municipal wastewater may also be discharged at discharge Point EFF-002 to the Mt Shasta Resort Golf Course as recycled water at Latitude 41°16'59.16" N, and longitude 122°19'7.80"W .
5. Separate effluent limitations apply to discharges at each of the three discharge points above.

### C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations/Discharge Specifications contained in the existing Order for discharges of treated effluent during the core winter discharge period (November 15 through May 14) to the Sacramento River at EFF-001 (Monitoring Location is immediately after the dechlorination chamber) and representative monitoring data from the term of the previous Order are as follows:

**Table F-2a. Historic Effluent Limitations and Monitoring Data (Core Winter Discharge)**

Parameter	Units	Effluent Limitation			Monitoring Data (From 03/01/03 – To 09/01/06)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD	mg/L	30	45	60	19.5	26.0	26.7
TSS	mg/L	30	45	60	29.1	56	57.5
Settleable Solids	mL/L	0.1		0.2	<0.1	<0.1	<0.1
Chlorine Residual	mg/L			0.02	<0.01	<0.01	<0.01
Total Coliform Organisms	MPN	23 <sup>1</sup>		500	2 <sup>1</sup>		24
Acute Toxicity	% Survival	90% <sup>2</sup>		70% <sup>3</sup>	90%	100% <sup>2</sup>	20% <sup>3</sup>

<sup>1</sup> Monthly Median

<sup>2</sup> Median for any three or more consecutive bioassays

<sup>3</sup> Minimum for any one bioassay

**Table F-2b. Historic Effluent Limitations and Monitoring Data (Shoulder Periods)**

Parameter	Units	Effluent Limitation			Monitoring Data (2003 – 2006)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
BOD	mg/L	10	15	30	4.6	7.2	7.2
TSS	mg/L	10	15	30	7.9	9.5	10.0
Settleable Solids	mL/L	0.1		0.2	<0.1	<0.1	<0.1
Chlorine Residual	mg/L			0.02	<0.01	<0.01	<0.01
Total Coliform Organisms	MPN	2.2 <sup>1</sup>		23	2 <sup>1</sup>		24
Acute Toxicity	% Survival	90% <sup>2</sup>		70% <sup>3</sup>	90%	100% <sup>2</sup>	20% <sup>3</sup>
Flow	mgd			0.70 <sup>4</sup>			

<sup>1</sup> Monthly Median<sup>2</sup> Median for any three or more consecutive bioassays<sup>3</sup> Minimum for any one bioassay<sup>4</sup> Average Daily Maximum

#### **D. Compliance Summary**

The Discharger has generally been in compliance with Permit conditions. One exception was the failure of an acute bioassay test on 21 January 2005 for which the survival was 20%. An acute bioassay performed on 25 February 2005 resulted in 100% survival of test fish, and there have been no violations of acute toxicity effluent limitations since. The source of the 21 January 2005 toxicity was not determined.

A second incident of non compliance occurred in October 2006 when the Discharger's supply well at the plant failed, and the Discharger was unable to chlorinate treated effluent being pumped to the highway 89 leachfield as required in the waste discharge requirements. (Chlorination is required to minimize the risk of infection through incidental contact in the case of a line failure). This condition continued for approximately two weeks while a new well was being drilled. As the discharge to the leachfield is not an NPDES discharge, this violation was not subject to mandatory minimum penalties, and no adverse impacts were observed.

#### **E. Planned Changes**

The Discharger has made a number of plant modifications and improvements, and performed maintenance that will increase the plant capacity from 0.70 mgd to 0.80 mgd dry weather flow when additional inter-pond piping is completed in the fall of 2007. These actions include lengthening of the chlorine contact chamber, upgrading and expanding the headworks components including influent Parshall flume, installation of new compressors to increase air flow to the ponds, removal of sludge from Ponds one and two and upgrading of the collection system particularly the section in the Ream Avenue-Old Stage Road area.

Because of the design of the plant there is a long residence time in the ponds and therefore considerable evaporation takes place particularly in the summer months. As a result, the influent flow is greater than the effluent flow which raises the question of whether influent or effluent flow should be specified in the flow limitation. The following is a list of the individual components of the Mt. Shasta Wastewater Treatment Plant and their capacity as estimated by the Discharger's consultant Pace Engineering:

Headworks - 6.0 mgd  
Aerated Lagoons - 0.8 mgd  
Flotation Thickening and Filtration System - 0.8 to 1.0 mgd  
Disinfection - 1.4 mgd  
Sacramento River Outfall - 2.5 to 3.0 mgd  
Leachfield Pumps - 1.05 mgd  
Highway 89 Leachfield - 0.70 mgd  
Discharge to Mt Shasta Resort Golf Course – 0.90 mgd

The only component of the plant not capable of treating 0.80 mgd is the Highway 89 Leachfield which is only used for a period of several weeks prior to and after the irrigation season at the Mt. Shasta Resort Golf Course. The Discharger in a letter dated 29 November 2006 requested that the effluent flow limit for discharges to the Sacramento River and the Mt. Shasta Resort Golf Course be increased to 0.80 mgd. Consequently the effluent flow limitation for all discharges excepting the discharge to the Highway 89 Leachfield has been increased from 0.70 to 0.80 mgd, contingent upon the completion of the pond piping referenced earlier. The flow limitation for discharge EFF-003 to the Highway 89 Leachfield remains at 0.70 mgd. The only period during which treated effluent is discharged to the Leachfield is for a few weeks during the spring and fall when the Golf Course does not require the water for irrigation, and for periods of upset. Because of the large pond volume of the facility there would be more than adequate capacity if the influent flow were greater than the effluent flow for the short period of leachfield discharge.

The inflow and infiltration in the Mt. Shasta area is high due to the presence of springs and high groundwater which persist late into the summer. For this reason the dry weather flow period has been specified as 1 August through 31 October.

### **III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

#### **A. Legal Authority**

See Limitations and Discharge Requirements - Findings, Section II.C.

#### **B. California Environmental Quality Act (CEQA)**

See Limitations and Discharge Requirements - Findings, Section II.E.

## C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised August 2006), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Sacramento River downstream of the discharge are municipal and domestic supply; agricultural supply, including stock watering; water contact recreation; non-contact water recreation, including aesthetic enjoyment; cold freshwater habitat; cold spawning, reproduction, and /or early development; and wildlife habitat.

The Basin Plan on page II-1.00 states: “*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*” and with respect to disposal of wastewaters states that “*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*”

The federal CWA section 101(a)(2), states: “*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

This Order contains Effluent Limitations requiring an advanced secondary level of treatment, or equivalent, which is necessary to protect the beneficial uses of the receiving water. The Regional Water Board has considered the factors listed in CWC section 13241 in establishing these requirements, as discussed in more detail in the Fact Sheet, Attachment F.

2. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal

antidegradation policy where the federal policy applies under federal law.

Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the Anti-Backsliding requirements is discussed in Section IV.D.3.
4. **Emergency Planning and Community Right to Know Act.** Section 13263.6(a), California Water Code, requires that *"the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective"*.

The Regional Water Board has adopted numeric receiving water objectives for arsenic, barium, boron, copper, lead, cadmium, zinc, cyanide, iron, manganese, molybdenum, selenium and silver in the Water Quality Control Plan for the *Sacramento and San Joaquin River Basins* (Basin Plan). As detailed in this Permit, available effluent quality data indicate that effluent concentrations of copper and zinc do have a reasonable potential to cause or contribute to an excursion above numeric water quality objectives in the Basin Plan.

5. **Stormwater Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations. However, only facilities with average dry weather flows over 1 mgd are required to be covered. The Discharger does not discharge over 1 mgd.
6. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the

beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

#### **D. Impaired Water Bodies on CWA 303(d) List**

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 25, 2003 USEPA gave final approval to California's 2002 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as “...*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.)*.” The Basin Plan also states, “*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*” The Upper Sacramento River is not included in the 303(d) list of water quality limited segments.
2. **Total Maximum Daily Loads.** The US EPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant and water body combination. There are no 303(d) listed pollutants for the Upper Sacramento River.

#### **E. Other Plans, Policies and Regulations**

1. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq.* (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:
  - a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
2. The State Water Board adopted the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California*. The requirements within this Order are consistent with the Policy.

#### IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 CFR, § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR Section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that “*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*” Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that “[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.”

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board’s Basin Plan, page IV-17.00 contains an implementation policy (“Policy for Application of Water Quality Objectives” that specifies that the Regional Water Board “*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*” This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) EPA’s published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Water Board’s “Policy for Application of Water Quality Objectives”)(40 CFR 122.44(d)(1)(vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*” (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial

uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

## **A. Discharge Prohibitions**

As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

## **F. Technology-Based Effluent Limitations**

### **1. Scope and Authority**

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.
- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to

set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

Regulations promulgated in section 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH.

Following publication of the secondary treatment regulations, legislative history indicates that Congress was concerned that USEPA had not “sanctioned” the use of certain biological treatment techniques that were effective in achieving significant reductions in BOD<sub>5</sub> and TSS for secondary treatment. Therefore to prevent unnecessary construction of costly new facilities, Congress included language in the 1981 amendment to the Construction Grants statues [Section 23 of Pub. L. 97-147] that required USEPA to provide allowance for alternative biological treatment technologies such as trickling filters or waste stabilization ponds. In response to this requirement, definition of secondary treatment was modified on September 20, 1984 and June 3, 1985, and published in the revised secondary treatment regulations contained in section 133.105. These regulations allow alternative limitations for facilities using trickling filters and waste stabilization ponds that meet the requirements for “equivalent to secondary treatment.” These “equivalent to secondary treatment” limitations are *up to* 45 mg/L (monthly average) and *up to* 65 mg/L (weekly average) for BOD<sub>5</sub> and TSS.

Therefore, POTWs that use waste stabilization ponds, identified in section 133.103, as the principal process for secondary treatment and whose operation and maintenance data indicate that the TSS values specified in the equivalent-to-secondary regulations cannot be achieved, can qualify to have their minimum levels of effluent quality for TSS adjusted upwards.

Furthermore, in order to address the variations in facility performance due to geographic, climatic, or seasonal conditions in different States, the Alternative State Requirements (ASR) provision contained in section 133.105(d) was written. ASR allows States the flexibility to set permit limitations above the maximum levels of 45 mg/L (monthly average) and 65 mg/L (weekly average) for TSS from lagoons. However, before ASR limitations for suspended solids can be set, the effluent must meet the BOD limitations as prescribed by 40 section 133.102(a). Presently, the maximum TSS value set by the State of California for lagoon effluent is 95 mg/L. This value corresponds to a 30-day consecutive average or an average over duration of less than 30 days.

In order to be eligible for equivalent-to-secondary limitations, a POTW must meet all of the following criteria:

- The principal treatment process must be either a trickling filter or waste stabilization pond.
- The effluent quality consistently achieved, despite proper operations and maintenance, is in excess of 30 mg/L BOD<sub>5</sub> and TSS.
- Water quality is not adversely affected by the discharge. (40 CFR § 133.101(g).)

The treatment works as a whole provides significant biological treatment such that a minimum 65 percent reduction of BOD<sub>5</sub> is consistently attained (30-day average).

## 2. Applicable Technology-Based Effluent Limitations

- BOD<sub>5</sub> and TSS.** Federal Regulations, 40 CFR, Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD<sub>5</sub> and TSS. A daily maximum effluent limitation for BOD<sub>5</sub> and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. This Order contains a limitation requiring an average of 85 percent removal of BOD<sub>5</sub> and TSS over each calendar month.
- Flow.** The City of Mt. Shasta Wastewater Treatment Plant was originally designed to provide a secondary level of treatment for up to 0.70 mgd. Improvements have been made to the plant as described in II E above which will expand the secondary/advanced secondary level of treatment to 0.80 mgd of effluent flow with the exception of the Highway 89 Leachfield which continues to have a design capacity of 0.70 mgd. This Order contains a final Average Daily Discharge Flow effluent limit of 0.80 mgd for all discharges except discharge EFF-003 to the Highway 89 Leachfield, for which the effluent flow limitation is

0.70 mgd. This Order contains an interim flow limit of 0.70 mgd which remains in effect until the completion of inter-pond piping in the fall of 2007.

**Summary of Technology-based Effluent Limitations, EFF-001  
15 November – 14 April**

**Table F-3a. Summary of Technology-based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
TSS (Total Suspended Solids)	mg/L	30	45	60	NA	NA
	lbs/day <sup>2</sup>	200	300	400	NA	NA
BOD <sub>5</sub> (5 Day/20°C)	mg/L	30	45	60	NA	NA
	lbs/day <sup>2</sup>	200	300	400	NA	NA
Removal, BOD <sub>5</sub> and TSS	%	85	NA	NA	NA	NA
pH	Standard Units	NA	NA	6.0 – 9.0	NA	NA
Average Dry Weather Flow	million gallons per day			0.80 <sup>1</sup>		

<sup>1</sup> Average daily maximum

<sup>2</sup> Based on average dry weather flow of 0.80 mgd.

**Summary of Technology-based Effluent Limitations,  
15 April – 14 June and 15 September – 14 November EFF- 001**

**Table F-3b Summary of Technology-based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
TSS (Total Suspended Solids)	mg/L	10	15	30	NA	NA
	lbs/day <sup>2</sup>	67	100	200		
BOD <sub>5</sub> (5 Day/20°C)	mg/L	10	15	30	NA	NA
	lbs/day <sup>2</sup>	67	100	200		
Removal, BOD <sub>5</sub> and TSS	%	85	NA	NA	NA	NA
pH	Standard Units	NA	NA	6.0 – 9.0	NA	NA
Average Dry Weather Flow	million gallons per day			0.80 <sup>1</sup>		

<sup>1</sup> Average daily maximum

<sup>2</sup> Based on average dry weather flow of 0.80 mgd.

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

### 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. **Receiving Water.** Upper Sacramento River. The beneficial uses of the Sacramento River from Box Canyon Dam to Shasta Lake are as follows: Municipal and domestic supply (MUN), Agricultural supply, including stock watering (AGR), Water contact recreation, including canoeing and rafting (REC-1), Non-contact water recreation, including aesthetic enjoyment (REC-2), Cold freshwater habitat (COLD), Cold spawning, reproduction, and /or early development (SPWN), and Wildlife habitat (WILD).
- b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, effluent limitations for certain metals. The *California Toxics Rule*, at (c)(4), states the following:

*“Application of metals criteria. (i) For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/L or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations.”*  
[emphasis added]

The State Water Board, in footnote 19 to Water Quality Order No. 2004-0013, stated: *“We note that...the Regional Water Board...applied a variable hardness value whereby effluent limitations will vary depending on the actual, current hardness values in the receiving water. We recommend that the Regional Water Board establish either fixed or seasonal effluent limitations for metals, as provided in the SIP, rather than ‘floating’ effluent limitations.”*

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using the reasonable worst-case condition (e.g., lowest ambient hardness) in order to protect beneficial uses for all discharge conditions. For purposes of establishing

water quality-based effluent limitations, a reported hardness value of 56 mg/L as  $\text{CaCO}_3$  was used.

- c. **Assimilative Capacity/Mixing Zone.** No mixing zone/dilution study has been submitted by the Discharger and, therefore, the assimilative capacity of the receiving water for specific pollutants is unknown. Consequently there is no allowance for dilution for toxic pollutants in this Permit with the exception of chronic toxicity for which a dilution of 10:1 is allowed. This allowance is justified as the minimum flow from Box Canyon Dam, 40 cubic feet per second (CFS) insures that dilution will be 20:1 or more at all times. In addition the effects of chronic toxicity take place over a much longer time period than those for acute toxicity and, therefore, the mixing zone characteristics are not so critical. The Discharger will be required to submit a mixing zone/dilution study to confirm that a dilution of 10:1 or greater exists at all times that treated effluent is discharged to the Sacramento River. Compliance for all other effluent limitations is required at end of pipe.

### 3. Determining the Need for WQBELs

- a. CWA section 301 (b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include Regional Water Board Basin Plan beneficial uses and narrative and numeric water quality objectives, State Water Board-adopted standards, and federal standards, including the CTR and NTR. The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, and tastes and odors. The narrative toxicity objective states: *"All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."* (Basin Plan at III-8.00.) With regards to the narrative chemical constituents objective, the Basin Plan states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, *"...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)"* in Title 22 of CCR. The narrative tastes and odors objective states: *"Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses."*
- b. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Water Board

finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for ammonia, copper, zinc, 4,4'-DDT, electrical conductivity (EC), acute toxicity and total residual chlorine. Water quality-based effluent limitations (WQBELs) for these constituents are included in this Order. A summary of the reasonable potential analysis (RPA) is provided in Table F-7a and F-7b, and a detailed discussion of the RPA for each constituent is provided below.

- c. The Regional Water Board conducted the RPA in accordance with Section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Board may use the SIP as guidance for water quality-based toxics control.<sup>1</sup> The SIP states in the introduction *"The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency."* Therefore, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents.
- d. WQBELs were calculated in accordance with section 1.4 of the SIP, as described in Attachment F, Section IV.C.4.

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<sup>1</sup> See, Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City)

**Table F-4 City of Mt. Shasta WWTP: Analytical Results for Priority Pollutants Detected in Effluent and Upstream Receiving Water (ug/L).**

Constituents	7 February 2001			19 March 2002			1 October 2002		
	Effluent	R-001	Blank	Effluent	R-001	Blank	Effluent	R-001	Blank
Arsenic	< 0.26	< 0.26		< 0.1	0.3 DNQ		0.3 DNQ	0.5	
Chromium (Total)	<0.05	<0.05		<0.01	0.50		<0.1	0.40 DNQ	
Copper	22	<0.09		23.9	0.38 DNQ		23.10	0.4 DNQ	
Lead	<0.06	<0.06		0.5	0.05 DNQ		0.12 DNQ	0.02 DNQ	
Mercury	0.0143	0.0016		0.0104	0.00065		0.0024	0.00093	
Nickel	<0.12	2		1	8		2	5.0	
Selenium	0.8 DNQ	<0.35		0.5 DNQ	0.3 DNQ		0.5 DNQ	<0.2	
Thallium	<0.07	<0.07		0.02 DNQ	0.02 DNQ		0.01 DNQ	<0.01	
Zinc	16	<10		38	7		12	4	
Cyanide	3.0 DNQ	<2		<2	<2		<2	10	
Chloroform	<0.5	<0.5		1.6	<0.5		1.0	<0.5	1.0
di-n-Octylphthalate	<1	<1		1 DNQ	<1		<1	<1	
Toluene	<0.5	<0.5		1.4	<0.5		<0.5	<0.5	
Bis (2-Ethylhexyl) Phthalate	<1	<1		6	<2		9	6	
4,4'-DDT	0.11	<0.0017		<0.0017	<0.0017		<0.0017	<0.0017	
Diethylphthalate	3.4	<1		<1	<1		<1	<1	
Dimethylphthalate	<1	<1		<1	<1		1 DNQ	<1	

- e. **Ammonia.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does not currently use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. Applying 40 CFR section 122.44(d)(1)(vi)(B), it is appropriate to use USEPA's Ambient National Water Quality Criteria for the

Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms.

USEPA's *Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life*, for total ammonia, recommends acute (1-hour average; criteria maximum concentration) standards based on pH and chronic (30-day average, criteria continuous concentration) standards based on pH and temperature. It also recommends a maximum four-day average concentration of 2.5 times the criteria continuous concentration. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the Upper Sacramento River has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used. USEPA's recommended criteria are as follows:

$$CCC_{30\text{-day}} = \left( \frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) \times \text{MIN} \left( 2.85, 1.45 \cdot 10^{0.028(25 - T)} \right), \text{ and}$$

$$CMC = \left( \frac{0.275}{1 + 10^{7.204 - pH}} + \frac{39.0}{1 + 10^{pH - 7.204}} \right),$$

where  $T$  is in degrees Celsius

The maximum permitted effluent pH is 9.0. The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. The highest receiving water temperature (51°F), and pH (7.7) yielding the lowest CCC and CMC occurred on 22 April 2005. Effluent limitations based on a pH value of 7.7 and the worst-case temperature value of 51°F (10.6 C) are 3.68 mg/L (as N) for the average monthly effluent limitation (AMEL) and 29.57 mg/L (as N) for the average one-hour effluent limitation. Effluent Limitations for ammonia are included in this Order to assure the treatment process adequately nitrifies the waste stream in order to protect the aquatic habitat beneficial uses.

- f. **Bis (2-ethylhexyl) phthalate.** Bis (2-ethyl-hexyl) phthalate, in addition to several other phthalates, is used primarily as a plasticizer in polyvinyl chloride (PVC) resins. According to the Consumer Product Safety Commission, USEPA, and the Food and Drug Administration, these PVC resins are used to manufacture many products, including soft squeeze toys, balls, raincoats, adhesives, polymeric coatings, components of paper and paperboard, defoaming agents, animal glue, surface lubricants, and other products that must stay flexible and noninjurious for the lifetime of their use. The State MCL for bis(2 ethylhexyl)phthalate is 4 µg/l and the USEPA MCL is 6 µg/l. The NTR criterion for Human health protection for consumption of water and aquatic organisms is

1.8 µg/l and for consumption of aquatic organisms only is 5.9 µg/l.

The MEC for bis (2-ethyl-hexyl) phthalate was 9 µg/L, based on three samples collected between 7 February 2001 and 1 October 2002, while the maximum observed upstream receiving water bis (2-ethyl-hexyl) phthalate concentration was 6 µg/L, based on three samples collected between 7 February 2001 and 1 October 2002.

The arithmetic mean of the receiving water bis (2-ethylhexyl) phthalate concentrations is 2.5 µg/L. The receiving water concentration has exceeded the criterion; therefore, there is no assimilative capacity for bis (2-ethylhexyl) phthalate and the NTR criterion must be met at the point of discharge.

As explained, Bis (2 ethylhexyl) phthalate is a commonly used plasticizer and is to some extent ubiquitous in the environment. There have been many instances in which the analytical results for effluent and receiving water have no apparent explanation other than sample contamination. An example would be the 1 October result for upstream receiving water of 6 ug/L. There is no known source of upstream contamination. Furthermore, a sample of Sacramento River water immediately upstream of the City of Dunsmuir, about 10 miles downstream from the City of Mt. Shasta Discharge 001, was taken the same day and found to be free of bis (2 ethylhexyl) phthalate. The Dunsmuir receiving water sample would have included the contribution from the City of Mt. Shasta discharge. In all future sampling events the Discharger will take particular care to eliminate contamination.

If modifications to the sampling and/or analytical procedures demonstrate, after six consecutive sampling events, that bis (2 ethylhexyl) phthalate is not present in the discharge in concentrations above the NTR human health criterion for consumption of water and aquatic organisms, it will be concluded that there is no reasonable potential for bis (2 ethylhexyl) phthalate to exceed an applicable criteria, and that it poses no threat to beneficial uses. If, however, it is demonstrated that bis (2 ethylhexyl) phthalate is present in the effluent and poses a threat to beneficial uses, then this Permit may be reopened and effluent limitations for bis (2 ethylhexyl) phthalate included.

- g. **Chlorine Residual.** The Discharger uses chlorine for disinfection, which is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent prior to discharge to the Upper Sacramento River. Due to the existing chlorine use and the potential for chlorine to be discharged, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan's narrative toxicity objective.

The USEPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001] contains statistical methods for converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data

and the expected frequency of monitoring. However, because chlorine is an acutely toxic constituent that can and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. The Discharger is required to install continuous chlorine monitoring equipment within two years of the adoption of this Permit. Average one-hour and four-day limitations for chlorine, based on these criteria, are included in this Order. The Discharger can immediately comply with these new effluent limitations for chlorine residual based on the present method of sampling and it is believed that compliance will continue after the installation of continuous chlorine monitoring.

The Facility discharges through a diffuser to the Upper Sacramento River. The chlorine residual limitations required in this Order are protective of aquatic organisms in the undiluted discharge. If compliance is maintained, the Regional Water Board does not anticipate residual chlorine impacts to benthic organisms.

- h. **Copper.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Using the worst-case measured hardness from the receiving water (56 mg/L as CaCO<sub>3</sub>), the applicable chronic criterion (maximum four-day average concentration) and the applicable acute criterion (maximum one-hour average concentration) expressed as total recoverable concentrations were calculated using the following formulae:

$$CCC = e^{[0.8545 \ln(\text{hardness}) - 1.702]}$$

$$CMC = e^{[0.9422 \ln(\text{hardness}) - 1.700]}$$

The applicable CTR chronic criterion for copper is 5.68 ug/L (total recoverable) and the applicable CTR acute criterion for copper is 8.11 (total recoverable). The Basin Plan acute objective for copper in the Sacramento River above the State Highway 32 bridge at Hamilton City expressed as a dissolved fraction is given by the following formula:

$$CCC = e^{[0.905 \ln(\text{hardness}) - 1.612]}$$

The applicable acute Basin Plan criteria is 7.61 ug/L (dissolved) After application of the conversion factor the applicable acute Basin Plan criteria becomes 7.92 ug/L (total recoverable). The MEC for total copper was 23.9 µg/L, based on three samples collected between 7 February 2001 and 1 October 2002, while the maximum observed upstream receiving water total copper concentration was 0.40 µg/L, based on three samples collected between 7 February 2001 and 1 October 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR and Basin Plan criteria for copper. No dilution is allowed as the Discharger has yet to complete a mixing zone/dilution study. The Long Term Average Condition (LTA) for copper is

calculated by multiplying the Effluent Concentration Allowance (ECA), which in this case is equivalent to the applicable criteria, by the appropriate multiplier. The multiplier is based on the coefficient of variation of the sample results which is assumed to be 0.6 as there are less than 10 data points. The LTA (acute) =  $(0.321) (7.92) = 2.54$ . The LTA (chronic) =  $(0.527) (5.68) = 2.99$ . The lower of the two LTAs is multiplied by the appropriate statistically based factor to determine the Average Monthly Effluent Limit (AMEL) and the Maximum daily Effluent Limit (MDEL). The AMEL for copper =  $1.55 (2.54) = 3.94 \mu\text{g/L}$  total recoverable and the MDEL for copper =  $3.11 (2.54) = 7.90 \mu\text{g/L}$  total recoverable. An AMEL and MDEL for total copper of  $3.94 \mu\text{g/L}$  and  $7.90 \mu\text{g/L}$ , respectively, are included in this Order based on the Basin Plan acute criterion for the protection of freshwater aquatic life. (See Attachment F, Table F-6a and F-6b for WQBEL calculations).

The Discharger will be unable to comply with these limitations. A Tentative Cease and Desist Order with interim performance based limits and a time schedule for compliance for copper will be placed on the same agenda as this NPDES Permit. An interim performance-based MDEL of  $74.3 \mu\text{g/L}$  was calculated using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.D.1. of the SIP. The interim AMEL was set equal to the MEC.

- i. **4,4'-DDT.** The CTR includes a 4,4'-DDT criterion of  $0.00059 \mu\text{g/L}$  for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed. The MEC for 4,4'-DDT was  $0.11 \mu\text{g/L}$ , based on three samples collected between 7 February 2001 and 1 October 2002, while the maximum observed upstream receiving water 4,4'-DDT concentration was  $<0.005 \mu\text{g/L}$ , based on three samples collected between 7 February 2001 and 1 October 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for 4,4'-DDT.

No 4,4'-DDT has been detected in the ambient receiving water. The lowest detection level of the receiving water 4,4'-DDT concentrations is  $0.005 \mu\text{g/L}$ ; Since the lowest detection level is greater than the criterion, no assimilative capacity for 4,4'-DDT is available. In accordance with Section 1.3 of the SIP, which states that the AMEL (Human Health) is equal to the ECA and the MDEL(Human Health) is equal to the AMEL (Human Health) multiplied by the ratio of the MDEL multiplier to the AMEL multiplier, an AMEL and MDEL for 4,4'-DDT of  $0.00059 \mu\text{g/L}$  and  $0.00118 \mu\text{g/L}$ , respectively, are included in this Order. The AMEL and MDEL are based on the CTR criterion for the protection of human health (See Attachment F.4.a and F.4.b for WQBEL calculations).

The Discharger may be unable to comply with these limitations. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for

calculating interim effluent limitations described in Attachment F, Section IV.D.1., an interim performance-based maximum daily limitation of 0.34 µg/L was calculated.

Section 2.1 of the SIP provides that: *“Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.”* Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: *...“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.”* The Discharger provided this information on 13 December 2006. The final water quality-based effluent limitations for 4,4'-DDT become effective on **May 18, 2010**.

The interim effluent limitations are in effect through **May 17, 2010**.

The Discharger can offer no explanation for the presence of 4,4'-DDT in the treatment plant effluent as evidenced by the single effluent sample of 7 February 2001. The magnitude of the result indicates that the 4,4'-DDT was in fact present, but it may be a one time occurrence. If 4,4'-DDT is not detected in the effluent for six consecutive sampling events, no further sampling for 4,4'-DDT will be required and the effluent limitation for 4,4'-DDT will not be included in the next updated or revised Permit.

- j. **Electrical Conductivity. (see Subsection n. Salinity)**
- k. **Pathogens.** Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the receiving stream. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. In a letter to the Regional Water Board dated 8 April 1999, the California Department of Health Services indicated that DHS would consider wastewater discharged to water bodies with identified beneficial uses of irrigation or contact recreation and where the wastewater receives dilution of more than 20:1 to be adequately disinfected if the effluent coliform concentration does not exceed 23 MPN/100 mL as a 7-day median and if the effluent coliform concentration does not exceed 240 MPN/100 mL more than once in any 30 day period. Therefore, the 23 MPN/100 mL limitation is found to be appropriate. Based on a review of data submitted by the Discharger, the period of record for the United States Geological Survey monitoring stations on the Upper Sacramento River, and the discharge flow from Lake Siskiyou provided by Siskiyou County Public Works Department, there has

been no instance in which the dilution has been less than 20:1 (river flow to design effluent flow).

- l. **pH.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...*pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*” Effluent Limitations for pH are included in this Order and are consistent with the Basin Plan objectives for pH.
- m. **Salinity.** The discharge contains total dissolved solids (TDS), chloride, sulfate, and electrical conductivity (EC). These are water quality parameters that are indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of water for human consumption. There are no USEPA water quality criteria for the protection of aquatic organisms for these constituents. The Basin Plan contains a chemical constituent objective that incorporates State MCLs, contains a narrative objective, and contains numeric water quality objectives for EC, TDS, Sulfate, and Chloride.

**Table F- 5. Salinity Water Quality Criteria/Objectives**

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Basin Plan (D-1641) <sup>4</sup>	Effluent	
				Avg	Max
TDS (mg/L)	450 <sup>2</sup>	500, 1000, 1500	N/A	161	248
Sulfate (mg/L)	N/A	250, 500, 600	N/A	Not Av.	Not Av.
Chloride (mg/L)	106 <sup>2</sup>	250, 500, 600	N/A	33.5	37.7

- 1 Agricultural water quality goals based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985)
- 2 Agricultural water quality goals listed provide no restrictions on crop type or irrigation methods for maximum crop yield. Higher concentrations may require special irrigation methods to maintain crop yields or may restrict types of crops grown.
- 3 The secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.
- 4 The D-1641 water quality objectives apply at three monitoring locations in the South Delta. They do not apply to the entire Delta.

- i. **Chloride.** The secondary MCL for chloride is 250 mg/L, as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. The recommended agricultural water quality goal for chloride, that would apply the narrative chemical constituent objective, is 106 mg/L as a long-term average based on *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers.

Chloride concentrations in the effluent ranged from 26.0 mg/L to 37.7 mg/L, with an average of 33.5 mg/L, for three samples collected by the Discharger from 10/05 through 9/06. Background concentrations in the Sacramento River at the point of discharge are not available, however they would be expected to be less than 10 mg/L. Neither the receiving water nor the effluent exceed the agricultural water quality goal of 106 mg/L and there is no reasonable potential at present to do so.

- ii. **Electrical Conductivity (EC).** The secondary MCL for EC is 900  $\mu$ mhos/cm as a recommended level, 1600  $\mu$ mhos/cm as an upper level, and 2200  $\mu$ mhos/cm as a short-term maximum. The agricultural water quality goal, that would apply the narrative chemical constituents objective, is 700  $\mu$ mhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 700  $\mu$ mhos/cm agricultural water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops, such as beans, carrots, turnips, and strawberries. These crops are either currently grown in the area or may be grown in the future. Most other crops can tolerate higher EC concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the EC, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

A review of the Discharger's monitoring reports from 3/02 through 9/06 shows an average effluent EC of 292  $\mu$ mhos/cm, with a range from 241  $\mu$ mhos/cm to 502  $\mu$ mhos/cm for 23 samples. These levels are within the applicable objectives. The background receiving water EC analyses are not available, however they would be expected to average less than 200  $\mu$ mhos/cm. An effluent limitation of 700  $\mu$ mhos/cm monthly average EC is included in this Permit to insure that discharges of salts are minimized and to comply with the anti degradation policy.

- iii. **Sulfate.** The secondary MCL for sulfate is 250 mg/L as recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. Sulfate concentrations in the effluent ranged from 2.24 mg/L to 7.6 mg/L, with an average of 5.2 mg/L, for four samples collected by the Discharger from 12 February 2002 through 19 November 2002. Background concentrations in the unnamed tributary of Smuthers Ravine ranged from 4 mg/L to 9.4 mg/L, with an average of 7 mg/L, for four samples collected by the Discharger from 12 February 2002 through 19 November 2002.

Sulfate analyses of effluent and receiving water is not available but it can be assumed with reasonable certainty that the maximum sulfate concentration of the effluent is less than 250 mg/L, the secondary MCL, since the maximum effluent TDS is 248 mg/L and the average chloride concentration is 33.5

mg/L. Consequently no effluent limitations for Sulfate are included in this Permit.

- iv. **Total Dissolved Solids (TDS).** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. The recommended agricultural water quality goal for TDS, that would apply the narrative chemical constituent objective, is 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. The 450 mg/L water quality goal is intended to prevent reduction in crop yield, i.e. a restriction on use of water, for salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm, however, as the salinity of the irrigation water increases, more crops are potentially harmed by the TDS, or extra measures must be taken by the farmer to minimize or eliminate any harmful impacts.

The average TDS effluent concentration was 161 mg/L and a ranged from 104 mg/L to 248 mg/L for 23 samples collected by the Discharger from 3/02 through 9/06. These concentrations do not exceed the applicable water quality objectives. The background receiving water TDS was not available but would be expected to average less than 100 mg/L. No effluent limitations for TDS have been included in this Permit. This is justified because of the effluent limitation of 700  $\mu$ mhos/cm for E.C. E.C. and TDS are typically highly correlated for any given discharge, and limiting E.C. would also limit TDS.

v. **Salinity Effluent Limitations**

The Regional Water Board, with cooperation of the State Water Board, has begun the process to develop a new policy for the regulation of salinity in the Central Valley. In a statement issued at the 16 March 2006, Regional Water Board meeting, Board Member Dr. Karl Longley recommended that the Regional Water Board continue to exercise its authority to regulate discharges of salt to minimize salinity increases within the Central Valley. Dr. Longley stated, *"The process of developing new salinity control policies does not, therefore, mean that we should stop regulating salt discharges until a salinity Policy is developed. In the meantime, the Board should consider all possible interim approaches to continue controlling and regulating salts in a reasonable manner, and encourage all stakeholder groups that may be affected by the Regional Board's policy to actively participate in policy development."* The inclusion of an effluent limitation for electrical

conductivity of 700  $\mu$ mhos/cm is consistent with Dr. Longley's statement.

- n. **Settleable Solids.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” This Order contains average monthly and average daily effluent limitations for settleable solids.

Because the amount of settleable solids is measured in terms of volume per volume without a mass component, it is impracticable to calculate mass limitations for inclusion in this Order. A daily maximum effluent limitation for settleable solids is included in the Order, in lieu of a weekly average, to ensure that the treatment works operate in accordance with design capabilities.

- o. **Total Trihalomethanes (THMs).** Information submitted by the Discharger indicates that the effluent contains the THM chloroform. The Basin Plan contains the narrative “chemical constituent” objective that requires, at a minimum, that waters with a designated MUN use not exceed California MCLs. In addition, the chemical constituent objective prohibits chemical constituents in concentrations that adversely affect beneficial uses. The California primary MCL for total THMs is 100  $\mu$ g/L. The USEPA primary MCL for total THMs is 80  $\mu$ g/L, which was effective on January 1, 2002 for surface water systems that serve more than 10,000 people. Pursuant to the Safe Drinking Water Act, DHS must revise the current total THMs MCL in Title 22, CCR to be as low or lower than the USEPA MCL. Total THMs include bromoform, dichlorobromomethane, chloroform, and chlorodibromomethane. The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the regional boards, departments, and offices within Cal/EPA. This cancer potency factor is equivalent to a chloroform concentration in drinking water of 1.1  $\mu$ g/L (ppb) at the 1-in-a-million cancer risk level with an average daily consumption of two liters of drinking water over a 70-year lifetime. This risk level is consistent with that used by the DHS to set de minimis risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels, and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by USEPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters.

MUN is a designated beneficial use of the receiving water. However, there are no known drinking water intakes in the Upper Sacramento River for several miles downstream of the discharge, and chloroform is a non-conservative pollutant. Therefore, to protect the MUN use of the receiving waters, the Regional Water Board finds that, in this specific circumstance, application of the USEPA MCL for total THMs for the effluent is appropriate, as long as the receiving water does not

exceed the OEHHA cancer potency factor's equivalent receiving water concentration at a reasonable distance from the outfall. Effluent samples collected from 7 February 2001 through 1 October 2002 indicate that the THM chloroform was present, with a maximum concentration of 1.6 µg/L and an average concentration of 0.7 µg/L. Therefore, total THMs in the discharge have no reasonable potential to cause or contribute to an in-stream excursion above the USEPA primary MCL for total THMs.

- p. **Toxicity.** See Section IV.C.5 of the Fact Sheet regarding whole effluent toxicity.
- q. **Zinc.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. Using the worst-case measured hardness from the receiving water (56mg/L as CaCO<sub>3</sub>) the applicable chronic criterion (maximum four-day average concentration) and the applicable acute criterion (maximum one-hour average concentration) expressed as total recoverable concentrations, were calculated using the following formulae:

$$CCC = e^{[0.8473\ln(hardness)+0.884]}$$

$$CMC = e^{[0.8473\ln(hardness)+0.884]}$$

The applicable CTR chronic criterion for zinc is 73.31 ug/L(total recoverable) and the applicable CTR acute criterion for copper is 73.31 (total recoverable).

The Basin Plan acute objective for zinc in the Sacramento River above the State Highway 32 bridge at Hamilton City expressed as a dissolved fraction is given by the following formula:

$$CCC = e^{[0.830\ln(hardness)-0.289]}$$

The applicable acute Basin Plan criteria is 21.16 ug/L (dissolved). After application of the conversion factor the applicable acute Basin Plan criteria becomes 21.63 ug/L (total recoverable). The MEC for total zinc was 38 µg/L, based on 3 samples collected between 7 February 2001 and 1 October 2002, while the maximum observed upstream receiving water total zinc concentration was 7 µg/L, based on three samples collected between 7 February 2001 and 1 October 2002. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR and Basin Plan criteria for zinc. No dilution is allowed as the Discharger has yet to submit a mixing zone/dilution study. The Long Term Average Condition (LTA) for zinc is calculated by multiplying the Effluent Concentration Allowance (ECA), which in this case is equivalent to the applicable criteria, by the appropriate multiplier. The multiplier is based on the coefficient of variation of the sample results, which is assumed to be 0.6 as there are less than 10 data points. The LTA (acute) = (0.321) (21.63) = 6.94. The LTA (chronic) = (0.527) (73.31) = 38.63. The lower

of the two LTAs is multiplied by the appropriate statistically based factor to determine the Average Monthly Effluent Limit (AMEL) and the Maximum daily Effluent Limit (MDEL). The AMEL for zinc =  $1.55 (6.94) = 10.76\mu\text{g/L}$  total recoverable and the MDEL for zinc =  $3.11 (6.94) = 21.58\mu\text{g/L}$  total recoverable. An AMEL and MDEL for total zinc of  $3.94 \mu\text{g/L}$  and  $7.90 \mu\text{g/L}$ , respectively, are included in this Order based on the Basin Plan acute criterion for the protection of freshwater aquatic life.

The Discharger will be unable to comply with these limitations. A Tentative Cease and Desist Order with interim performance based limits and a time schedule for compliance for the final effluent limitation for zinc will be placed on the same agenda as this NPDES Permit.

#### 4. WQBEL Calculations

- a. Effluent limitations for 4,4' DDT, copper and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations.
- b. **Effluent Limitation Calculations.** In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC$$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$$ECA_{HH} = HH + D(HH - B)$$

where:

$ECA_{acute}$  = effluent concentration allowance for acute (one-hour average) toxicity criterion

$ECA_{chronic}$  = effluent concentration allowance for chronic (four-day average) toxicity criterion

$ECA_{HH}$  = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (one-hour average)

CCC = criteria continuous concentration (four-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL).

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL} \left[ \overbrace{\min(M_A ECA_{acute}, M_C ECA_{chronic})}^{LTA_{acute}} \right]$$

$$MDEL = mult_{MDEL} \left[ \min \left( M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right]$$

$$MDEL_{HH} = \left( \frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}$$

where:  $mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL  
 $mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL  
 $M_A$  = statistical multiplier converting CMC to LTA  
 $M_C$  = statistical multiplier converting CCC to LTA

Water quality-based effluent limitations were calculated for ammonia, copper, zinc and 4,4'-DDt as specified in the sections above.

### Summary of Water Quality and Performance-based Effluent Limitations Discharge Point 001

**Table F-6a. Summary of Water Quality-based Effluent Limitations (16 November through 14 April)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
EC	µmhos/cm	600				
Ammonia	mg/L	3.68		29.57		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper	ug/L	3.94		7.90		
Zinc	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		

<sup>1</sup> Four-day average

<sup>2</sup> One-hour average

<sup>3</sup> Weekly median

<sup>4</sup> Daily maximum

<sup>5</sup> Daily average

**Table F-6b. Summary of Water Quality-based Effluent Limitations (15 April through 14 June and 16 September through 15 November)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
EC	µmhos/cm	600				
Ammonia	mg/L	3.68		29.57		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper	ug/L	3.94		7.90		
Zinc	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		
Turbidity	NTU		5.0	10.0		

<sup>1</sup> Four-day average

<sup>2</sup> One-hour average

<sup>3</sup> Weekly median

<sup>4</sup> Daily maximum

<sup>5</sup> Daily average

## 5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, Section V.). This Order also contains effluent limitations for acute toxicity and requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. **Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, "*All waters shall be maintained free of toxic substances in contractions that produce detrimental physiological responses in human, plant, animal, or aquatic life.*" (Basin Plan at III-8.00). The Basin Plan also states that, "...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...". USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2, "Toxicity Requirements" (pages 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1TUc.*" Accordingly, effluent limitations for acute toxicity have been included in this order as follows:

**Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay.....	70%
Median for any three or more consecutive bioassays .....	90%

- b. **Chronic Aquatic Toxicity.** Based on annual whole effluent chronic toxicity testing performed by the Discharger from 1/2002 through 10/2006, the discharge has reasonable potential to cause or contribute to an to an in-stream excursion above of the Basin Plan's narrative toxicity objective. (The average weight and survival of Pimephales promelas and the reproduction of Ceriodaphnia dubia have shown statistically significant reduction from 100%effluent to laboratory test water control in some but not all tests).

A dilution of 10:1 has been granted for chronic condition based on the fact that 20:1 dilution of effluent in receiving water exists at all times. In addition, chronic effects take place over a longer time period and therefore the extent of the mixing zone is not so critical as for acute effects. Therefore, chronic toxicity testing

results not exceeding 10 chronic toxicity units (TUC) are considered to be in compliance with chronic toxicity limitations in this Permit. To confirm that the 10:1 dilution is warranted, the Discharger is required to submit a mixing zone/dilution study within 2 years of the effective date of this Order.

Numeric chronic WET effluent limitations have not been included in this order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region<sup>1</sup> that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *"In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic whole effluent toxicity testing, as specified in the Monitoring and Reporting Program (Attachment E, Section V.).

## **D. Final Effluent Limitations**

### **1. Mass-based Effluent Limitations.**

Title 40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in

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<sup>1</sup> In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g. CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations were calculated based upon the permitted average daily discharge flow allowed in Section IV.A.1 of the Limitations and Discharge Requirements.

## **2. Averaging Periods for Effluent Limitations.**

Title 40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for publicly owned treatment works (POTWs) unless impracticable. However, for toxic pollutants and pollutant parameters in water quality permitting, the US EPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. *“First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge’s potential for causing acute toxic effects would be missed.”* (TSD, pg. 96) This Order utilizes maximum daily effluent limitations in lieu of average weekly effluent limitations for copper, zinc, ammonia, 4,4'-DDT and ammonia as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for BOD, TSS, pH, coliform, and turbidity, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in Attachment F, Section IV.C.3., above.

## **3. Satisfaction of Anti-Backsliding Requirements.**

All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order.

## **4. Satisfaction of Antidegradation Policy**

This Order is consistent with the antidegradation provisions of 40 CFR 131.12, State Water Board Resolution 68-16, and State Water Board APU 90-004.

The State Water Board established California’s antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 incorporates the Federal antidegradation policy (40 CFR 131.12) where the Federal policy applies under Federal law. Resolution 68-16 requires in part:

*1) High quality waters be maintained until it has been demonstrated that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies; and*

*2) Any activity, which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.*

The permitted surface and groundwater discharges will result in some minimal degradation of waters of the State and navigable waters of the United States, but in this case, such degradation is consistent with the maximum benefit to the people of the State. Limited degradation that does not cause exceedance of water quality objectives is warranted to allow for the economic benefit stemming from local growth. In this case, the City of Mt. Shasta is growing and continued treatment of wastewater is necessary to protect water quality and accommodate growth. The Regional Water Board defers to the local government agencies (City of Mt. Shasta and Siskiyou County) regarding land use and land development decisions, and their opinion that development is important and necessary. This Fact Sheet contains detailed information about each constituent of concern in the waste discharge and what changes in the discharge may occur for each constituent. The effluent concentrations for all constituents are based on water quality criteria and objectives and an increase in mass for some constituents, if any, will be insignificant. The accommodation of the development justifies lowering of receiving water quality. In this case, however, this Order authorizes, very minimal, if any lowering of receiving water quality given the increased level of treatment required by this Order. Consistent with the Federal and State antidegradation policies, this Order requires the Discharger to meet requirements that will result in best practicable treatment or control. This Order requires compliance with applicable Federal technology based standards and contains more stringent water quality based effluent limitations, where required. This Order includes additional requirements for treatment and control that, in some cases, exceed Federal standards. This Order requires secondary and advanced secondary treatment, which is in excess of Federal technology based standards. It also requires the discharge to be disinfected to DHS recommendations for the protection of water contacts recreation beneficial uses. Discharge during the summer peak recreation period is prohibited. Due to upstream flow requirements, the discharge will always receive a dilution ratio of at least 20:1 (Sacramento River: effluent), but usually much greater (i.e., 100:1). In addition, this Order does not grant any credit for dilution until an adequate mixing zone and dilution study is provided.

These requirements to implement best practicable treatment or control will assure that pollution or nuisance will not occur and that the highest water quality consistent

with maximum benefit to the people of the State will be maintained. Due to the high level of treatment requirements, the seasonal discharge prohibition, and the significant dilution available, this Order will result in maintenance of existing in-stream uses. In performing the “reasonable potential” analysis, the Regional Water Board considered the discharge effects on water quality on a pollutant-by-pollutant basis. This Order includes that analysis.

Discharge Prohibition III.C of this Order prohibits the wastewater treatment and discharge from causing a nuisance as defined by the California Water Code.

State Board APU 90-004 states that,

*“A Regional Board may determine that it is not necessary to do a complete antidegradation analysis. The Regional Board may reach this determination if, using its best professional judgment and all available pertinent information, the Regional Board decides that the discharge will not be adverse to the intent and purpose of the State and Federal antidegradation policies.*

*Based on information available to the Regional Board and any other background material the Regional Board believes is necessary, a complete antidegradation analysis will not be required if:...*

*3. A Regional Board determines the proposed action will produce minor effects which will not result in a significant reduction of water quality; e.g., a POTW has a minor increase in the volume of discharge subject to secondary treatment; or... “*

Further discussion of antidegradation as it pertains to the surface and groundwater discharges is provided below.

- a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. The increase in the permitted average dry weather flow rate from 0.70 mgd to 0.80 mgd is a “minor increase in the volume of discharge” and is subject to secondary and advanced secondary treatment. The increase will not result in a “significant reduction of water quality” (APU 90-004). In fact, Regional Board staff does not expect any measurable impact to receiving water quality from the increased discharge flow rate. The increase will not have significant impacts on aquatic life, which is the beneficial use most likely affected by the pollutants discharged (BOD, suspended solids, chlorine residual, temperature, and metals). Furthermore, there is a prohibition for all discharge to the Sacramento River during the period 15 June through 15 September which is the period of minimum dilution. During the shoulder periods, 15 April through 14 June and 16 September through 15 November the Discharge must meet more stringent advanced secondary limitations for BOD, TSS, coliform and turbidity. The increase in the discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

- b. **Groundwater.** The permitted discharge to land is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. The Discharger uses *oxidation ponds* for primary treatment of effluent prior to disinfection. The ponds are immediately adjacent to a steep canyon (Box Canyon) formed by the Sacramento River. The Sacramento River lies approximately 300 yards to the southwest and 400 vertical feet below the bottom of the oxidation ponds. Groundwater monitoring at the wastewater treatment plant and the golf course is not necessary. Approximately 25 feet of soil (sand and clay) suitable for the treatment of percolating wastewater exists beneath these areas. Underlying groundwater is first encountered at approximately 250 feet bgs, and flows toward the Sacramento River, where any impacts are directly measured by the receiving water monitoring required in this Order. The potential for some groundwater degradation is always present when wastewater, even treated wastewater, is applied to land with underlying groundwater. However, in this case, the degradation is expected to be minor, and occur in an area where installation of a water supply well is neither practical nor desirable because of the required setback distances, and the steep terrain with poor access. It should also be noted that the Discharger's land application of treated wastewater is at Regional Board staff's request, as a means to eliminate the surface water discharge during the summer recreation period. Recently adopted permits for similar facilities do not require groundwater monitoring for the use of recycled water at golf courses. The City of Mt. Shasta is a small community with limited resources, so permit requirements must be carefully considered.

The groundwater monitoring program established by this Order is capable of determining whether the leachfield discharge degrades groundwater. The monitoring is both adequate and appropriate, and protects beneficial uses. The three wells used for monitoring the leachfield were selected to monitor background, near-field downgradient, and far-field downgradient. All three wells are screened at 250 feet below ground surface, which is the depth of first encountered groundwater. No degradation in groundwater quality has been observed in over 20 years, with the exception of a minor increase in the concentration of nitrate at the edge of the leachfield. The highest nitrate concentration at this location is only one-tenth of the MCL, and is suspect because the EC concentration is stable--a contrary finding. It should also be noted that the effluent sent to the leachfield is not raw wastewater; it has been treated to secondary standards, and disinfected. The leachfield discharge only occurs during the summer, and then only what the golf course doesn't use. The usage of the leachfield had been considerably reduced over the past five years since the plant began discharging treated recycled water to the adjacent Mt. Shasta Resort Golf Course during the summer months. The number of days treated effluent is pumped to the leachfield now averages less than 20 per year.

## Summary of Final Effluent Limitations Discharge Point 001

**Table F-7a. Summary of Final Effluent Limitations (16 November through 14 April)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd			0.80		
pH	Standard Units				6.0	9.0
Settleable Solids	mL/L-Hr.	0.1		0.2		
EC	µmhos/cm	700				
BOD	mg/L	30	45	60		
	lbs/day	200	300	400		
TSS	mg/L	30	45	60		
	lbs/day	200	300	400		
Ammonia	mg/L	3.68		29.57		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper	ug/L	3.94		7.90		
Zinc	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		

<sup>1</sup> Four-day average

<sup>2</sup> One-hour average

<sup>3</sup> Weekly median

<sup>4</sup> Daily maximum

<sup>5</sup> Daily average

**Table F-7b. Summary of final Effluent Limitations (15 April through 14 June and 16 September through 15 November)**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	mgd			0.80		
pH	Standard Units				6.0	9.0
Settleable Solids	mL/L-Hr.	0.1		0.2		
EC	µmhos/cm	700				
BOD	mg/L	30	45	60		
	lbs/day	200	300	400		
TSS	mg/L	30	45	60		
	lbs/day	200	300	400		
Ammonia	mg/L	3.68		29.57		
4,4'-DDT	ug/L	0.00059		0.00118		
Copper	ug/L	3.94		7.90		
Zinc	ug/L	10.76		21.58		
Total Residual Chlorine	mg/L	0.01 <sup>1</sup>		0.02 <sup>2</sup>		
Total Coliform Organisms	MPN/100 mL	23 <sup>3</sup>		240 <sup>4</sup>		
Average Dry Weather Flow	Million gallons/day			0.80 <sup>5</sup>		
Turbidity	NTU		5.0	10.0		

<sup>1</sup> Four-day average<sup>2</sup> One-hour average<sup>3</sup> Weekly median<sup>4</sup> Daily maximum<sup>5</sup> Daily average**E. Interim Effluent Limitations**

- Ammonia, 4,4'- DDT, Copper and Zinc.** The SIP, section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Water Board shall establish interim requirements and dates for their achievement in the NPDES permit. If the most stringent applicable criteria for a given Group I or Group II pollutant is a Basin Plan Objective, the corresponding compliance schedule must be included in a Cleanup and Abatement Order or a Time Schedule Order. Effluent limitations for copper and zinc in this Order are based on Basin Plan Objectives for the protection of aquatic life. [The proposed accompanying Cease and Desist Order contains interim limitations for copper and zinc and a time schedule for compliance with final effluent limitations.] The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

The interim limitations for ammonia and 4,4'-DDT in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data.

When there are less than ten sampling data points available, the *Technical Support Document for Water Quality- Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

Table 6 summarizes the calculations of the interim effluent limitations for Ammonia, 4,4'- DDT, Copper and Zinc:

**Table F-8. Interim Effluent Limitation Calculation Summary**

Parameter	MEC	Mean	Std. Dev.	# of Samples	Interim Limitation
Ammonia (mg/L)	18.8	9.3		10	AMEL = 18.8 MDEL = 58.5
4,4'-DDT (ug/L)	0.11	NA	NA	3	AMEL = 0.11 MDEL =0.34
Copper (ug/L) <sup>1</sup>	23.9	NA	NA	3	AMEL = 23.9 MDEL = 74.3
Zinc (ug/L)	38	NA	NA	3	AMEL = 38 MDEL =118.2

<sup>1</sup>Proposed in the accompanying Cease and Desist Order.

## F. Land Discharge Specifications

The Land Discharge Specifications are necessary to protect the beneficial uses of the groundwater.

## G. Reclamation Specifications

Treated wastewater discharged for reclamation is regulated under these waste discharge requirements and meets the requirements of California Code of Regulations, Title 22.

## V. RATIONALE FOR RECEIVING WATER LIMITATIONS

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

### A. Surface Water

- a. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity.

Numeric Basin Plan objectives for bacteria, dissolved oxygen, pH, temperature, and turbidity are applicable to this discharge and have been incorporated as Receiving Surface Water Limitations. Rational for these numeric receiving surface water limitations are as follows:

- a. **Ammonia.** The Basin Plan states that, “[w]aters shall not contain un-ionized ammonia in amounts which adversely affect beneficial uses. In no case shall the discharge of wastes cause concentrations of un-ionized ammonia ( $\text{NH}_3$ ) to exceed 0.025 mg/l (as N) in receiving waters.”

- b. **Bacteria.** The Basin Plan includes a water quality objective that “[I]n water designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.” Numeric Receiving Water Limitations for bacteria are included in this Order and are based on the Basin Plan objective.
- c. **Biostimulatory Substances.** The Basin Plan includes a water quality objective that “[W]ater shall not contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for biostimulatory substances are included in this Order and are based on the Basin Plan objective.
- d. **Color.** The Basin Plan includes a water quality objective that “[W]ater shall be free of discoloration that causes nuisance or adversely affects beneficial uses.” Receiving Water Limitations for color are included in this Order and are based on the Basin Plan objective.
- e. **Chemical Constituents.** The Basin Plan includes a water quality objective that “[W]aters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” Receiving Water Limitations for chemical constituents are included in this Order and are based on the Basin Plan objective.
- f. **Dissolved Oxygen.**

The Upper Sacramento River has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/L of dissolved oxygen. Since the beneficial use of COLD does apply to the Upper Sacramento River, a receiving water limitation of 7.0 mg/L for dissolved oxygen was included in this Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that “...the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.” This objective was included as a receiving water limitation in this Order.

- g. **Floating Material.** The Basin Plan includes a water quality objective that “[W]ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses.” Receiving Water Limitations for floating material are included in this Order and are based on the Basin Plan objective.
- h. **Oil and Grease.** The Basin Plan includes a water quality objective that “[W]aters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or

*on objects in the water, or otherwise adversely affect beneficial uses.”* Receiving Water Limitations for oil and grease are included in this Order and are based on the Basin Plan objective.

- i. **pH.** The Basin Plan includes water quality objective that *“[T]he pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses”* This Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in this Order.

- j. **Pesticides.** The Basin Plan includes a water quality objective for pesticides beginning on page III-6.00. Receiving Water Limitations for pesticides are included in this Order and are based on the Basin Plan objective.
- k. **Radioactivity.** The Basin Plan includes a water quality objective that *“[R]adionuclides shall not be present in concentrations that are harmful to human, plant, animal or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life.”* The Basin Plan states further that *“[A]t a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 4 (MCL Radioactivity) of Section 64443 of Title 22 of the California Code of Regulations...”* Receiving Water Limitations for radioactivity are included in this Order and are based on the Basin Plan objective.
- l. **Sediment.** The Basin Plan includes a water quality objective that *“[T]he suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses”* Receiving Water Limitations for suspended sediments are included in this Order and are based on the Basin Plan objective.
- m. **Settleable Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.”* Receiving Water Limitations for settleable material are included in this Order and are based on the Basin Plan objective.
- n. **Suspended Material.** The Basin Plan includes a water quality objective that *“[W]aters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.”* Receiving Water Limitations for

suspended material are included in this Order and are based on the Basin Plan objective.

- o. **Taste and Odors.** The Basin Plan includes a water quality objective that “[W]ater shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.” Receiving Water Limitations for taste- or odor-producing substances are included in this Order and are based on the Basin Plan objective.
- p. **Temperature.** The Sacramento River has the beneficial uses of both COLD and WARM Freshwater Habitat. The Basin Plan includes the objective that “[a]t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature.” This Order includes a receiving water limitation based on this objective.
- q. **Toxicity.** The Basin Plan includes a water quality objective that “[A]ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” Receiving Water Limitations for toxicity are included in this Order and are based on the Basin Plan objective.
- r. **Turbidity.** The Basin Plan includes a water quality objective that “[I]ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:
  - Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
  - Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.
  - Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
  - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent.”

A numeric Receiving Surface Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

## **B. Groundwater**

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.

2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan also establishes numerical water quality objectives for chemical constituents and radioactivity in groundwaters designated as municipal supply. These include, at a minimum, compliance with MCLs in Title 22 of the CCR. The bacteria objective prohibits coliform organisms at or above 2.2 MPN/100 ml. The Basin Plan requires the application of the most stringent objective necessary to ensure that waters do not contain chemical constituents, toxic substances, radionuclides, taste- or odor-producing substances, or bacteria in concentrations that adversely affect municipal or domestic supply, agricultural supply, industrial supply or some other beneficial use.
3. Groundwater limitations are required to protect the beneficial uses of the underlying groundwater.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

Section 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorizes the Regional Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

### **A. Influent Monitoring**

Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD and TSS reduction requirements).

### **B. Effluent Monitoring**

Pursuant to the requirements of 40 CFR §122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Quarterly 96-hour bioassay testing is required to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Annual chronic whole effluent toxicity testing is required in order to demonstrate compliance with the Basin Plan's narrative toxicity objective.

### D. Receiving Water Monitoring

#### 1. Surface Water

Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.

#### 2. Groundwater

- a. Section 13267 of the California Water Code states, in part, *"(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region" and "(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."* The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program (Attachment E) is issued pursuant to California Water Code Section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.
- b. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment or control. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this

permit may be reopened and modified. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality has been degraded by the discharge, the incremental change in pollutant concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.

- c. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

## **E. Other Monitoring Requirements**

### **1. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements (Special Provisions VI.C.6.a.). Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

### **2. Water Supply Monitoring**

Water supply monitoring is required to evaluate the source of constituents in the wastewater.

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions**

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Section 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the

regulations must be included in the Order. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

## **B. Special Provisions**

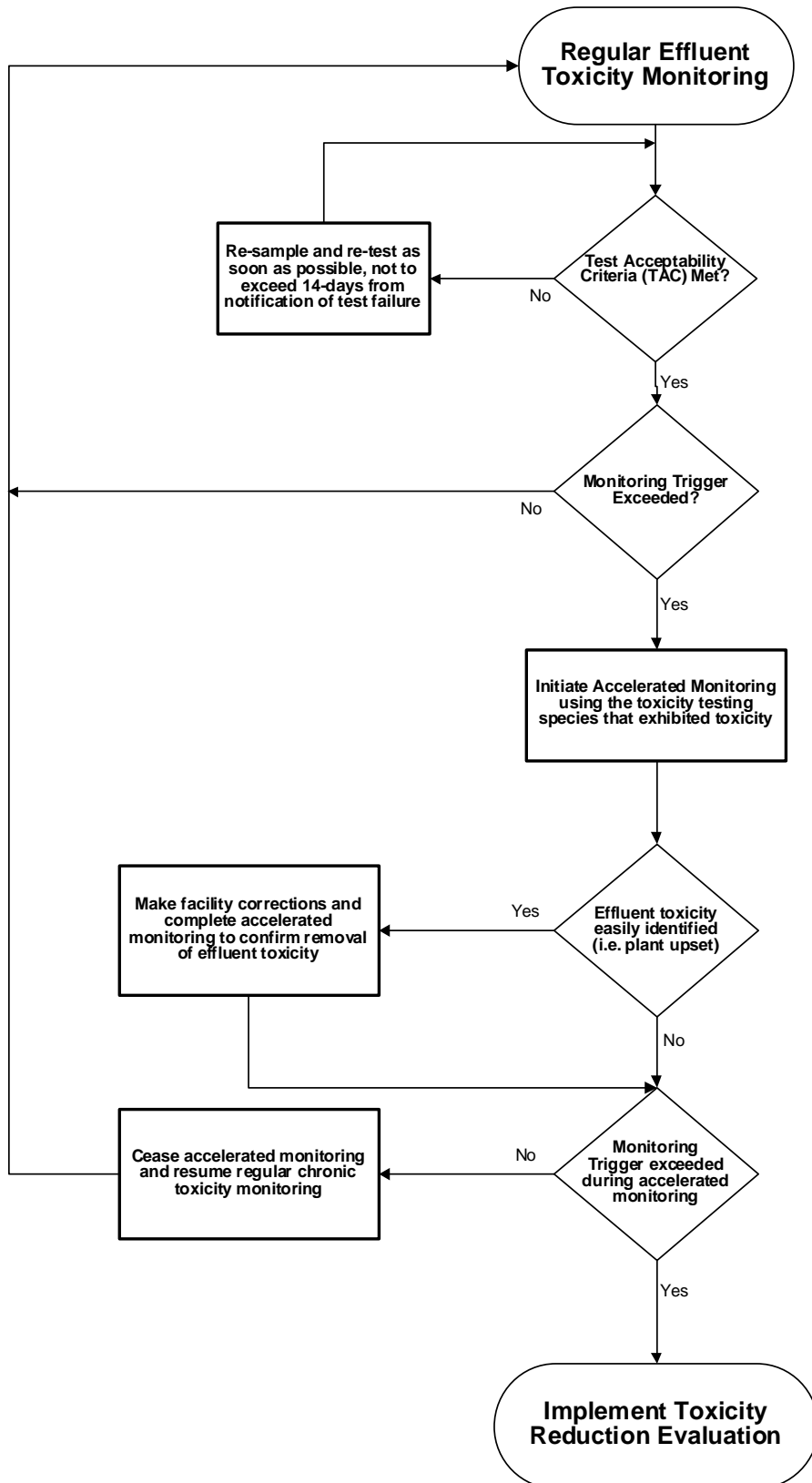
### **1. Reopener Provisions**

**Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable when developing effluent limitations for copper and zinc. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

### **2. Special Studies and Additional Monitoring Requirements**

- a. **Monitoring Trigger.** A numeric toxicity monitoring trigger of  $> 10 \text{ TUc}$  (where  $\text{TUc} = 100/\text{NOEC}$ ) is applied in the provision as the Discharger has been granted a 10:1 dilution allowance.
- b. **Mixing Zone and Dilution Study.** The Discharger shall conduct a mixing zone within two years of the adoption date of this Order.

**Figure F-3**  
**WET Accelerated Monitoring Flow Chart**



- 3. Best Management Practices and Pollution Prevention (Not Applicable)**
- 4. Construction, Operation, and Maintenance Specifications (Not Applicable)**
- 5. Special Provisions for Municipal Facilities (POTWs Only) (Not Applicable)**
- 6. Other Special Provisions (Not Applicable)**
- 7. Compliance Schedules**

The use and location of compliance schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria.

- a. **Regulatory Basis for Compliance Schedules.** In general, an NPDES permit must include final effluent limitations that are consistent with Clean Water Act section 301 and with 40 CFR 122.44(d). There are exceptions to this general rule. The State Water Board has concluded that where the Regional Water Board's Basin Plan allows for schedules of compliance and the Regional Water Board is newly interpreting a narrative standard, it may include schedules of compliance in the permit to meet effluent limits that implement a narrative standard. See *In the Matter of Waste Discharge Requirements for Avon Refinery* (State Board Order WQ 2001-06 at pp. 53-55). See also *Communities for a Better Environment et al. v. State Water Resources Control Board*, 34 Cal.Rptr.3d 396, 410 (2005). The Basin Plan for the Sacramento and San Joaquin Rivers includes a provision that authorizes the use of compliance schedules in NPDES permits for water quality objectives that are adopted after the date of adoption of the Basin Plan, which was September 25, 1995 (See Basin Plan at page IV-16). Consistent with the State Water Board's Order in the CBE matter, the Regional Water Board has the discretion to include compliance schedules in NPDES permits when it is including an effluent limitation that is a "new interpretation" of a narrative water quality objective. This conclusion is also consistent with the United States Environmental Protection Agency policies and administrative decisions. See, e.g., *Whole Effluent Toxicity (WET) Control Policy*. The Regional Water Board, however, is not required to include a schedule of compliance, but may issue a Time Schedule Order pursuant to Water Code section 13300 or a Cease and Desist Order pursuant to Water Code section 13301 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Basin Plan, should consider feasibility of achieving compliance, and must impose a schedule that is as short as practicable to achieve compliance with the objectives, criteria, or effluent limit based on the objective or criteria

Section 2.1 of the SIP provides that: *“Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.”* Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: *...“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.”* The SIP requires interim requirements under a compliance schedule. Section 2.2.1 states, *“If a compliance schedule is granted (in accordance with section 2.1), the RWQCB shall establish interim requirements and dates for their achievement in the NPDES permit.”*

- b. The Discharger submitted a request, and justification dated 13 December 2006, for a compliance schedule for 4,4’ – DDT and ammonia. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Order establishes a compliance schedule for the new, final, water quality-based effluent limitations for 4,4’ - DDT and requires full compliance by 18 May 2010.

## **VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the City of Mt. Shasta Wastewater Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

### **A. Notification of Interested Parties**

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following: Physically posting written notices at the City of Mt Shasta Post Office, Library and City Hall and publication in the Mt. Shasta Herald newspaper.

### **B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in

person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments should be received at the Regional Water Board offices by 5:00 p.m. on 7 June 2007.

### **C. Public Hearing**

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 21 and 22 June 2007  
Time: 8:30 am  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/rwqcb5/> where you can access the current agenda for changes in dates and locations.

### **D. Waste Discharge Requirements Petitions**

Any aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

### **E. Information and Copying**

The Report of Waste Discharge (RWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (530) 224-4845.

## **F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

## **G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Bryan Smith at (530) 226-3425.